

NBS REPORT

9762

7047

PROVISIONAL THERMODYNAMIC FUNCTIONS FOR HELIUM 4
FOR TEMPERATURES FROM 2 TO 1500 K WITH PRESSURES
TO 100 MN/m² (1000 ATMOSPHERES)

by

R. D. McCarty



FACILITY FORM 602	N70-42190	
	(ACCESSION NUMBER)	(THRU)
	202	1
	(PAGES)	(CODE)
	CR-114212	18
	(NASA CR OR TMX OR AD NUMBER)	(CATEGORY)



U. S. DEPARTMENT OF COMMERCE
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NATIONAL BUREAU OF STANDARDS REPORT

NBS PROJECT

NBS REPORT

27502-2750422

August 1, 1970

9762

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This work has been supported by
National Aeronautics and Space Administration
Headquarters Fund Transfer No R-06-006-046
and W12-745

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FOREWORD

This report is in response to many requests for thermodynamic property data for helium. Although the data and functions given in this report should be treated as preliminary, and therefore subject to change, they do represent a substantial improvement over previous correlations. Therefore, this preliminary document is necessary to satisfy the interim need since the preparation and publication of the final version would otherwise entail substantial delay in providing availability of the data.

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ABSTRACT

The thermodynamic properties for helium 4 from 2 to 1500 K with pressures to 100 MN/m² (1000 atmospheres) are presented. Entropy, enthalpy, internal energy, specific heat, speed of sound, density and temperature are tabulated for selected isobars. For convenience, these data are given in both pressure units of MN/m² and atmospheres. An equation of state covering the entire range of pressure and temperature is presented. Equations for the density of the saturated liquid and vapor are included as well as an equation which represents the 1958 helium vapor pressure temperature scale.

Key words: Helium 4, pressure, temperature, density, entropy, enthalpy, internal energy, specific heat, speed of sound, velocity of sound, second virial coefficient, vapor pressure, equation of state, liquid, gaseous, coexistence.

I. INTRODUCTION

During the course of this correlation of the thermodynamic properties of helium, two facts began to dominate the overall character of the task. First, it became apparent quite early in the analysis of the data gathered from the literature that even though a large body of data exists for helium, there are gaps to be filled, and areas where existing data are either of limited scope or are in disagreement with other data to such an extent that more experimental work is needed. Second, in the final stages of the correlation, it also became evident that substantial improvement over existing correlations had been achieved. The purpose of this report is to draw attention to these two observations and to make provisional functions available in advance of the final publication of the correlation.

II. NOMENCLATURE, CONVERSIONS, AND FIXED POINTS FOR HELIUM

List of Symbols

P	- absolute pressure
T	- absolute temperature
V	- specific volume
ρ	- density = $1/V$
R	- universal gas constant = $.0820558 \text{ l} \cdot \text{atm/mol} \cdot \text{K}$
Z	- compressibility factor = PV/RT
U	- specific internal energy
H	- specific enthalpy
S	- specific entropy
C_p	- specific heat capacity at constant pressure
C_v	- specific heat capacity at constant volume
w	- speed of sound
B	- second virial coefficient
G	- Gibbs function
b_i	- parameters for the second virial coefficient expression
s_{gi}	- parameters for the saturated density equation (vapor)
s_{li}	- parameters for the saturated density equation (liquid)
n_{ki}	- parameters for the equation of state
f_i	- parameters for the vapor pressure equation (1)
a_i	- parameters for the vapor pressure equation (2)

Superscripts

o	- ideal gas property
------	----------------------

Subscripts

- c - critical point
- o - reference state property
- Sat - property at saturation
- λ_t - lambda temperature
- expr - experimentally determined property value
- calc - calculated property value
- melt - melting line property
- l - liquid state
- g - gaseous state

Conversions and Physical Constants

1 thermochemical calorie = 4.184 joules

0° C = 273.15 K (triple point of water = 273.16)

1 liter-atmosphere = 101.325 joules

gas constant, R = .0820558 liter·atmospheres per mole·degree

Kelvin

molecular weight = 4.0026 (based on the carbon 12 scale)

1 atmosphere = 1.01325×10^5 Newton per meter²

1 Mega-Newton (MN) = 10^6 Newton

1 liter = 1000 cm³

Fixed Points for Helium

critical pressure = .22746 MN, (2.2449 atm) [1]

critical temperature = 5.2014 K*

critical density = 17.399 mol/l, (.06964 g/cm³) [2]

normal boiling point = 4.224 K* [3]

lambda temperature = 2.177 K* [4]

lambda point pressure = .005147 MN, (.0508 atm) [3]

lambda point density (liquid) = 36.514 mol/l (.14615 g/cm³) [4]

* The temperatures given here are based on an adjusted 1958 helium vapor pressure temperature scale. [3] The critical temperature for helium on the 1958 scale is 5.1994 K. The adjustments were made on the basis of NBS acoustical thermometry experiments [5]. In the case of the critical parameters, the equation of state has been constrained to reproduce these values exactly. Since the actual fitting was accomplished, new work suggests that the value of 5.2014 K for the critical temperature may be a few milli-degrees (as much as 4) high, however, the temperatures below 5K are unaffected by this new work.

III. SURVEY OF THE LITERATURE

A search of the world's scientific literature began with a computerized search of the holdings of the Cryogenic Data Center of the National Bureau of Standards at Boulder, Colorado. This search produced 634 references. Each of these references were carefully evaluated for possible contributions to the project of correlating the thermodynamic properties of helium. The bibliography of each selected reference was scrutinized for possible new references.

After the initial search of the literature had been accomplished, a constant surveillance of the current literature (also provided by the personnel of the Cryogenic Data Center in the form of their "Current Awareness" service) continually updated the original bibliography.

There probably has been more information published on helium than for any other fluid. This is largely due to its unique, so-called "superfluid" properties, but even when the superfluid literature is excluded there is left a large number of references. In 1968 Barieau [6] published a bibliography of all the references he could find which contained experimental P-V-T data on helium 4. The list contains 163 references. If for no other reason than the quantity of data available, value judgements were necessary to bring the experimental points down to a number which could be handled by the parameter estimating techniques. All data were considered in preliminary analysis and in most cases value judgements could be made on a scientific basis, however, in some cases experimental points were omitted from the fitting procedures because there were just too many points in a given region.

IV. THE LIQUID-VAPOR COEXISTENCE REGION

A. Vapor Pressure

The 1958 helium vapor pressure temperature scale [3] is represented by the following two equations.

$$\ln P = \sum_{i=1}^{10} f_i T^{(2-i)} \quad (1)$$

where T is in degrees Kelvin and pressure is in microns. The range of validity for this equation is 5.1994 to 2.172 K.

$$\ln P = \sum_{i=1}^{14} a_i T^{(2-i)} \quad (2)$$

where T and P are in the same units as equation (1) but the range of validity is 2.172 to 0.5 K.

Equation (1) was fit to 611 smoothed points from [3] taken every 0.005 K between 2.172 and 5.1994 K. In addition to the 611 data points, six constraints were imposed on the least squares estimate of the parameters. These constraints are listed in table 1.

Table 1

Constraints on Equation 1

1. $P = 37800.$ at $T = 2.172$
2. $P = 760000.$ at $T = 4.215$
3. $P = 1718000.$ at $T = 5.1994$
4. $dp/dt = 92960.$ at $T = 2.17$
5. $dp/dt = 717100.$ at $T = 4.22$
6. $dp/dt = 1267000.$ at $T = 5.2$

the coefficients (f_i) are given in table 3.

Equation (2) was fit to 333 points taken every 0.005 K from 0.5 K to 2.172 K. [3] In addition to the 333 data points, two constraints were imposed on the least squares estimate of the parameters. See table 2.

Table 2

Constraints on Equation 2

1. $P = 37800.$ at $T = 2.172$
2. $dp/dt = 92960.$ at $T = 2.17$

The coefficients (a_i) for equation (2) are given in table 4.

The maximum deviation in pressure for either equation (1) or (2) is .02%. The maximum deviation in temperature predicted by either equations (1) or (2) is 0.0001K. See figure 2. Deviations refer to deviations from the 1958 helium vapor pressure scale as defined by reference [3].

Table 3

Coefficients for Equation 1

$$\begin{aligned}
 f_1 &= -3.9394635287 \\
 f &= 1.4127497598 \times 10^2 \\
 f_3 &= -1.6407741565 \times 10^3 \\
 f_4 &= 1.1974557102 \times 10^4 \\
 f_5 &= -5.5283309818 \times 10^4 \\
 f_6 &= 1.6621956504 \times 10^5 \\
 f_7 &= -3.2521282840 \times 10^5 \\
 f_8 &= 3.9884322750 \times 10^5 \\
 f_9 &= -2.7771806992 \times 10^5 \\
 f_{10} &= 8.3395204183 \times 10^5
 \end{aligned}$$

Table 4

Coefficients for Equation 2

$$\begin{aligned}
 a_1 &= -4.9510540356 \times 10^1 \\
 a_2 &= 6.5192364170 \times 10^2 \\
 a_3 &= -3.7075430856 \times 10^3 \\
 a_4 &= 1.2880673491 \times 10^4 \\
 a_5 &= -3.0048545554 \times 10^4 \\
 a_6 &= 4.9532267436 \times 10^4 \\
 a_7 &= -5.9337558548 \times 10^4 \\
 a_8 &= 5.2311296025 \times 10^4 \\
 a_9 &= -3.3950233134 \times 10^4 \\
 a_{10} &= 1.6028674003 \times 10^4 \\
 a_{11} &= -5.3541038967 \times 10^3 \\
 a_{12} &= 1.1990301906 \times 10^3 \\
 a_{13} &= -1.6146362959 \times 10^2 \\
 a_{14} &= 9.8811553386
 \end{aligned}$$

The 1958 helium temperature scale [3] has been under intensive scrutiny in recent years. Many investigators have published experimental results which indicate the 1958 helium scale is in error by a detectable amount. Without exception, the pertinent analysis carried out for this correlation by the author to date indicates two things. First, the critical pressure of helium 4 is about 10 millimeters of mercury lower than is reported in the 1958 helium scale, and second, the temperatures in the 1958 helium scale are lower than the actual thermodynamic scale. These findings are consistent with recent experimental work. [5, 10].

On the basis of the present correlation* all temperatures below 5.2 K were adjusted according to:

$$T = T_{58} + .001 + .002T_{58} \quad (3)$$

If one takes as a best estimate, the critical pressure of helium to be 1705.0 mm H_g** and solves equations (3) and (1), a critical temperature of 5.2014 results.

B. Densities of the Coexisting Liquid and Vapor

The density of the saturated vapor is given by:

$$\rho_g = \rho_c + \sum_{i=1}^6 s_{gi} (1-T/T_c)^{i/3} \quad (4)$$

The density of the saturated liquid is given by:

$$\rho_l = \rho_c + \sum_{i=1}^6 s_{li} (1-T/T_c)^{i/3} \quad (5)$$

where the density is in g/cm³, and the temperature is in degrees Kelvin. The parameters s_g and s_l are given in table 5. The parameters for equations (4) and (5) were determined by least squares using the experimental data of [12]. The saturated liquid data below the lambda

* The work of Plumb and co-workers [5] was given heavy weight in this determination.

** The work of Edwards [1] and Roach [11] served as a basis for this estimate.

temperature were omitted. The average deviation for the liquid equation was 0.027% with a maximum of 0.1% (in density) at 4.4 K. The average deviation for the vapor equation was 0.1% with a maximum of 0.4% (in density) at 2.2 K. See figure 2. The range of the liquid equation is from the lambda point to the critical point and the range of the vapor equation is from 2.2 K to the critical point.

Table 5
Coefficients for Equations 4 and 5

Equation 4	Equation 5
$s_{g_1} = -6.9267495322 \times 10^{-2}$	$s_{l_1} = 1.2874326484 \times 10^{-1}$
$s_{g_2} = -1.2925325530 \times 10^{-1}$	$s_{l_2} = -4.3128217346 \times 10^{-1}$
$s_{g_3} = 2.9347470712 \times 10^{-1}$	$s_{l_3} = 1.7851911824$
$s_{g_4} = -4.0806658212 \times 10^{-1}$	$s_{l_4} = -3.3509624489$
$s_{g_5} = 3.5809505624 \times 10^{-1}$	$s_{l_5} = 3.0344215824$
$s_{g_6} = -1.1315580397 \times 10^{-1}$	$s_{l_6} = -1.0981289602$

V. THE EQUATION OF STATE

The development and least squares fitting of the equation of state for helium was accomplished in two separate stages. The first stage was the determination of the second virial coefficient from 2 to 1500 K, which is given by: —

$$B(b_i, T) = \sum_{i=1}^9 b_i T^{(1.5 - i/2)} \quad (6)$$

where B is the standard second virial from the expansion $P = \rho RT (1. + B\rho + \dots)$ and has the units of liters per mole. After extensive analysis of all the isothermal P-V-T data found in the literature four sources of P-V-T data were chosen for the final least squares fit of the equation (6). The data of Canfield, et al. [13] were chosen for the

temperature range of 133 to 273 K. The data of Sullivan [14] were chosen for the temperature range of 70 to 120 K. The data of White, et al. [15] were used for the temperature range of 20 to 70 K, and finally, the data of Keller [16] were used for temperatures from 2.154 to 3.957 K. In the case of sources [13] and [14] care was taken to exclude data above pressures where higher order virials began to contribute.

In addition to the P-V-T data mentioned above, two other kinds of data were fitted to equation (6) simultaneously with the P-V-T data. For details on the technique of simultaneous least squares estimation see Hust and McCarty [17]. The speed of sound data by Plumb and Cataland [5], which cover the temperature range between 2.323 and 20.051 K, were inserted into the fit as well as the second virial coefficient data of Yntema and Schneider [18] which cover the temperature range of 273 to 1473 K. The parameters for equation (6) are given in table 6.

Table 6.
Coefficients for Equation 6*

$b_1 = -5.0815710041 \times 10^{-7}$	$b_6 = -9.5759219306 \times 10^{-1}$
$b_2 = -1.1168680862 \times 10^{-4}$	$b_7 = 3.9374414843$
$b_3 = 1.1652480354 \times 10^{-2}$	$b_8 = -5.1370239224$
$b_4 = 7.4474587998 \times 10^{-2}$	$b_9 = 2.0804456338$
$b_5 = -5.3143174768 \times 10^{-1}$	

*The number of significant figures listed for these and all other tabulations of coefficients for the various equations are in no way indicative of the accuracy of the properties calculated from the equations. However the number of significant figures given are necessary to avoid arithmetic errors.

Table 7.

Second Virial Coefficients for Helium 4

Temp K	B × 10 ³ ℓ/mol	Temp K	B × 10 ³ ℓ/mol	Temp K	B × 10 ³ ℓ/mol
2	-203.81	40	7.62	200	12.33
4	- 85.83	50	9.33	250	12.16
6	- 51.20	60	10.37	300	11.95
8	- 33.88	80	11.49	400	11.51
10	- 23.37	100	12.00	500	11.10
15	- 9.25	120	12.25	600	10.71
20	- 2.25	140	12.36	800	10.02
25	1.85	160	12.39	1000	9.41
30	4.49	180	12.37	1500	8.12

The total equation of state is given by:

$$\begin{aligned}
 P = & \rho RT \left[1 + B(b_i, T) \rho \right] + \sum_{i=1}^8 n_{1i} \rho^3 T^{(1.5 - i/2)} \\
 & + \sum_{i=1}^4 n_{2i} \rho^4 T^{(1.5 - i)} + \sum_{i=1}^6 n_{3i} \rho^5 T^{(0.75 - i/4)} \\
 & + \sum_{i=1}^3 n_{4i} \rho^3 e^{\gamma \rho^2} T^{(1.0 - i)} + \sum_{i=1}^3 n_{5i} \rho^5 e^{\gamma \rho^2} T^{(1.0 - i)} \\
 & + \sum_{i=1}^2 n_{6i} \rho^6 T^{(1 - i)}. \quad (7)
 \end{aligned}$$

Where P is in atmospheres, ρ is in moles per liter, T is in degrees Kelvin, and $B(b_i, T)$ is represented by equation (6). The parameters for equation (7) are given in table 8.

Table 8.
Coefficients for Equation 7

$n_{11} = 1.9381451090 \times 10^{-5}$	$n_{32} = 3.6811167132 \times 10^{-5}$
$n_{12} = -4.1496408960 \times 10^{-4}$	$n_{33} = -1.4830691828 \times 10^{-4}$
$n_{13} = -5.7465772899 \times 10^{-4}$	$n_{34} = 3.0596174335 \times 10^{-4}$
$n_{14} = -4.3470945634 \times 10^{-3}$	$n_{35} = -3.3908190224 \times 10^{-4}$
$n_{15} = -6.8383888924 \times 10^{-2}$	$n_{36} = 1.9624080242 \times 10^{-4}$
$n_{16} = -2.1382474225 \times 10^{-2}$	$n_{41} = 2.5875753380 \times 10^{-3}$
$n_{17} = 2.7106954908 \times 10^{-2}$	$n_{42} = 7.9041608815 \times 10^{-2}$
$n_{18} = -1.2627967788 \times 10^{-2}$	$n_{43} = -1.4024724318 \times 10^{-4}$
$n_{21} = 1.5527899712 \times 10^{-5}$	$n_{51} = -2.8278987249 \times 10^{-7}$
$n_{22} = -3.6110403503 \times 10^{-5}$	$n_{52} = 1.7336410358 \times 10^{-6}$
$n_{23} = -1.0839788073 \times 10^{-5}$	$n_{53} = -2.5454187855 \times 10^{-6}$
$n_{24} = 4.9728101217 \times 10^{-5}$	$n_{61} = 5.9883101090 \times 10^{-9}$
$n_{31} = -3.8116033499 \times 10^{-6}$	$n_{62} = -4.9653052187 \times 10^{-7}$
	$\gamma = -0.0005$

The parameters for equation (7) were determined by least squares estimation techniques using several different kinds of input data, simultaneously. Selected P-V-T data from Lounasmaa [7], Canfield, et al. [13], Sullivan [14], Wiebe, et al. [19], Glassford and Smith [9], and el Haddi, et al. [12] were included in the fit together with the C_v data of Lounasmaa [7].

In addition to experimental data, the condition of the Gibbs function of the saturated liquid being equal to the Gibbs function of the saturated vapor at a common temperature was inserted into the fit at 30 temperatures between 2.2 and 5.1 K. Also, the entropy of vaporization was put into the fit at these same temperatures. Equations (2), (3), (4), and (5) were used to generate the properties needed for the fitting equations. The fitting equations are:

$$G_l - G_g = 0 = \int_{T, \rho_{sat_l}}^{\rho_{sat_g}} \frac{1}{\rho} \left(\frac{\partial P}{\partial \rho} \right)_T d\rho \quad (8)$$

$$S_g - S_l = \left(\frac{dP}{dT} \right)_{sat} (V_g - V_l) = - \int_{T, \rho_{sat_l}}^{\rho_{sat_g}} \frac{1}{\rho^2} \left(\frac{\partial P}{\partial T} \right)_\rho d\rho. \quad (9)$$

As a result of including the above two equations in the actual least squares estimation procedure, only one equation is needed to calculate a given derived property in both the gaseous and liquid states. In all the equation of state work done at this laboratory in the past this has not been possible. Previously, derived properties in the compressed liquid region ($T < T_c$, $\rho > \rho_{sat}$) were calculated in some other manner which always created a matching problem at T_c for all $\rho > \rho_c$. Using the above technique eliminates this problem as only one equation is used over the entire region.

The final least squares fit of the data described above was constrained at the critical point to

$$\left(\frac{\partial^2 P}{\partial \rho^2} \right)_T = \left(\frac{\partial P}{\partial \rho} \right)_T = 0$$

and to the state point of $P_c = 2.2449$ atm, $\rho_c = 0.06964$ g/cm³, and $T_c = 5.2014$ K.

VI. CALCULATION OF PROPERTIES

All the tabulated property values appearing in this report have been calculated using equation (7) and the following relationships.

$$S = S_{T_o}^o - R \ln \left(\frac{\rho R T}{P_o} \right) + \int_{T_o}^{\rho} \left[\frac{R}{\rho} - \frac{1}{\rho^2} \left(\frac{\partial P}{\partial T} \right)_{\rho} \right] d\rho + \int_{T_o}^T C_p^o \frac{dT}{T} \quad (10)$$

$$H = H_{T_o}^o + \int_{T_o}^{\rho} \left[\frac{P}{\rho^2} - \frac{T}{\rho^2} \left(\frac{\partial P}{\partial T} \right)_{\rho} \right] d\rho + \frac{P}{\rho} - RT + \int_{T_o}^T C_p^o dT \quad (11)$$

where $S_{T_o}^o = 37.068$ J/mol K, and $H_{T_o}^o = 146.328$ J/mol, $C_p^o = 5/2 R$
 $C_v^o = 3/2 R$, $T_o = 4.22$ K and $P_o = 1.0$

$$C_v = C_v^o - \int_{T_o}^{\rho} \frac{1}{\rho^2} \left(\frac{\partial^2 P}{\partial T^2} \right)_{\rho} d\rho \quad (12)$$

$$C_p = C_v + T \left(\frac{\partial P}{\partial T} \right)^2 / \left(\rho^2 \frac{\partial P}{\partial \rho} \right) \quad (13)$$

$$\omega = \left[\left(\frac{C_p}{C_v} \right) \left(\frac{\partial P}{\partial \rho} \right) \right]^{1/2} \quad (14)$$

In all cases the input variable pair was pressure (P) and temperature (T). This requires an iterative solution to equation (7). In the course of preparing the tabulations it was learned that in solving equation (7) for density for all pressures at temperatures below 20 K, it is important to begin the iteration with a reasonable guess. The reason is that a whole set of unwanted solutions exist in the liquid-vapor coexistence region and another set exist at densities slightly larger than the solid densities at temperatures to 20 K.

VII. DISCUSSION OF ERRORS

The equation of state is estimated to be accurate to 1.5 percent in at least one of the two state variables of pressure and density. This is true for all regions where experimental data exist. This means that in difficult regions such as the critical region where the density may be as much as 10 percent in error, the pressure will be accurate to a few tenths of a percent. In the compressed liquid region the inverse relationship may be true, i. e., pressures may not be accurate but the densities will be. In most regions, the equation is much better than the 1.5 percent stated above, for example, for the temperature range of 20 to 500, the accuracy is estimated to be on the order of 0.5 percent. Representative deviation plots are given in appendix A.

The amount of error present in the derived properties is a function of many variables and is difficult to evaluate. However, some indication may be had from the comparison of calculated and experimental specific heats [7]. This comparison shows an average deviation of 3 to 4 percent. These errors will be greater when approaching a saturation boundary or the lambda line. The latent heats of vaporization calculated from the Clapeyron relationship agree to within a few tenths of a percent with those calculated from the equation of state, except above 5 K where the latent heats approach zero.

VIII. SUGGESTIONS FOR FUTURE WORK

There are about three regions of P-T where new P-V-T measurements are needed. In the order of their importance they are:

1. The area of the P-V-T surface from about 2.2 K to 20 K with pressures to at least 350 atmospheres. At the present time only one source of experimental data exists which covers even part of this range and which is extensive enough to be of value. [7] Unfortunately these

data have some serious shortcomings which have hampered the present correlation. First these data do not include the saturated liquid and the saturated vapor, which means that saturation data must be added from some other source. This immediately introduces consistency problems. Second, when these data are compared to other experimental data at 100 atm, the two disagree by about 1.3% in density. This corresponds to a 7% error in pressure. See figure 1. Since no other source exists with which to compare the two sets of data, one has no choice but to assign a 1.5% uncertainty in density to the two sets and therefore the same uncertainty to the calculated values from the equation of state.

It is difficult to tell from Lounasmaas' thesis [7] exactly what his temperature scale was between 4.2 and 12 K, and conversion to what is now the best estimate of absolute temperatures in this range of temperature is impossible.

2. Low pressure, isothermal measurements from 4.2 to 70 K would be very helpful. If these measurements are to be of value, they must be of high accuracy. The measurements are needed to check the NBS acoustical measurements.

3. P-V-T measurements are needed in the 20 to 70 K region from low pressures to 1000 atm. Some high pressure measurements exist in this region [8], but their accuracy is poor, making them of little use to the correlator.

4. In addition to the P-V-T measurements, specific heat and speed of sound measurements should be made over the same regions of pressure and temperature. Ideally, all of the measurements should be made at the same laboratory in one continuous experimental program.

The correlation work just completed indicates improvement over the present equation of state can be accomplished by a better functional form for the representation of the high density fluid. The final version of this correlation will reflect further efforts towards a better functional representation of the high density fluid.

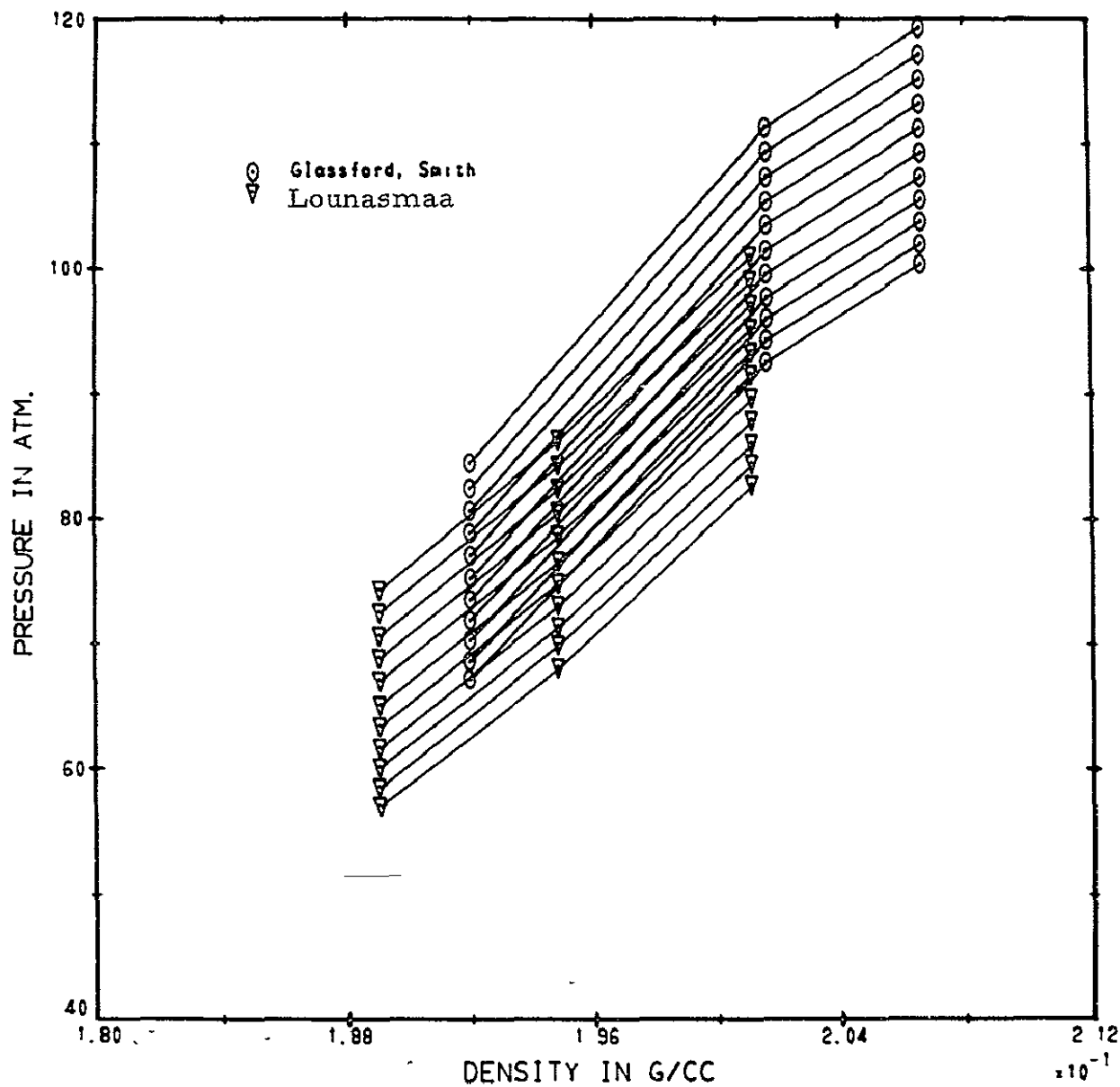
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X. APPENDIX A
Deviation Plots



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Figure 1. A Comparison of Experimental P-V-T Data
The data of Lounasmaa [7] and Glassford [9] have been cross plotted to obtain isotherms of the same value. The lower most line in each set is the 4.5 K isotherm and each succeeding line is .25 K higher than the one below it.

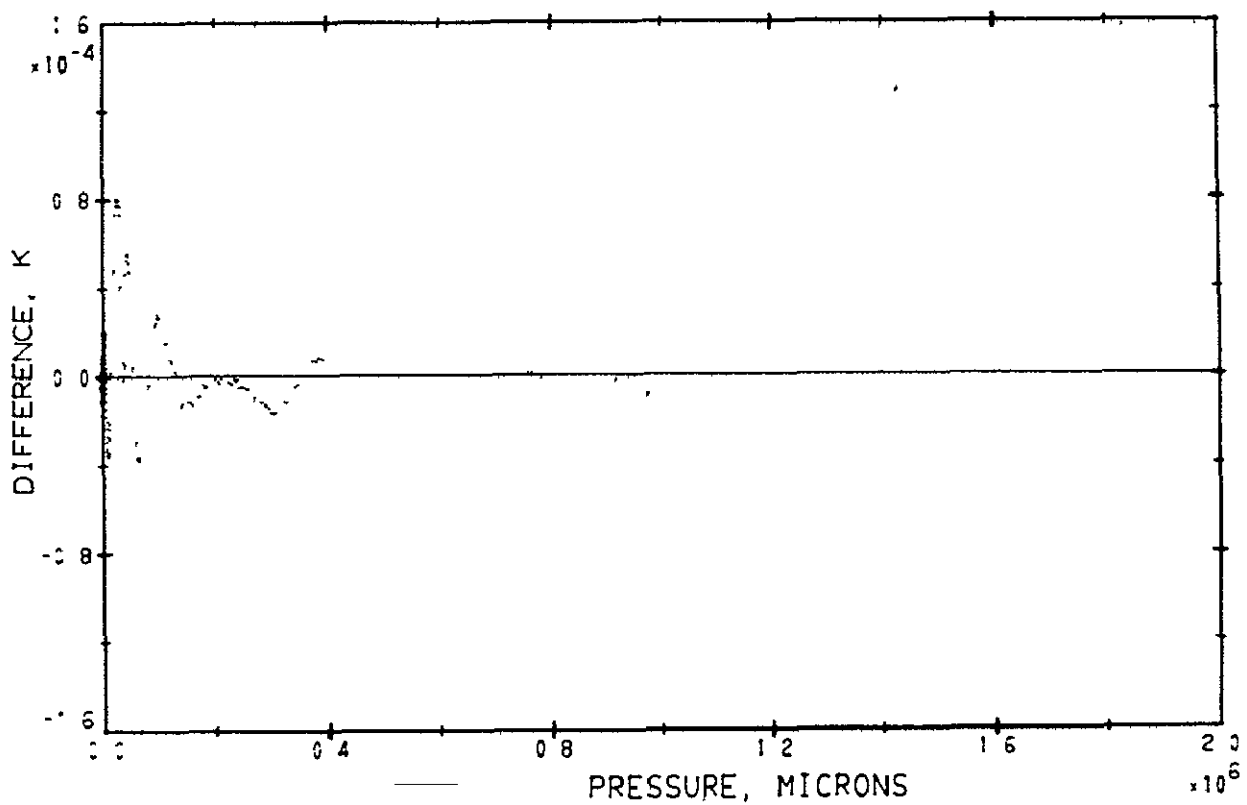


Figure 2. Deviation Plot of the 1958 Helium Vapor Pressure Temperature Scale.

The difference between temperatures calculated from equations (1) and (2) and the 1958 helium vapor pressure temperature scale [3].

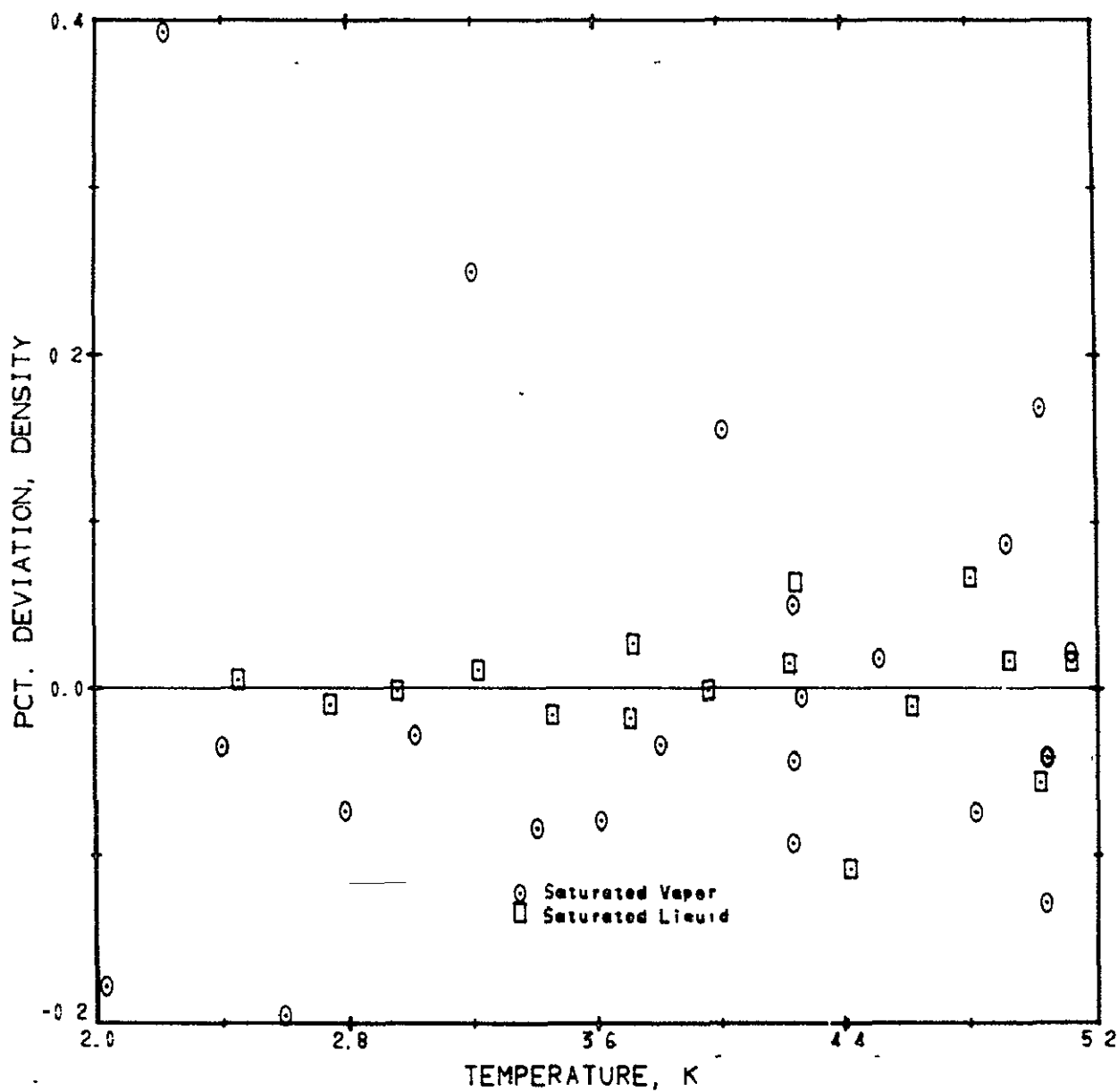


Figure 3. Deviation Plot of Saturation Densities.

Deviation plot of experimental data by el Hadi [12] and values calculated from equations (4) and (5).

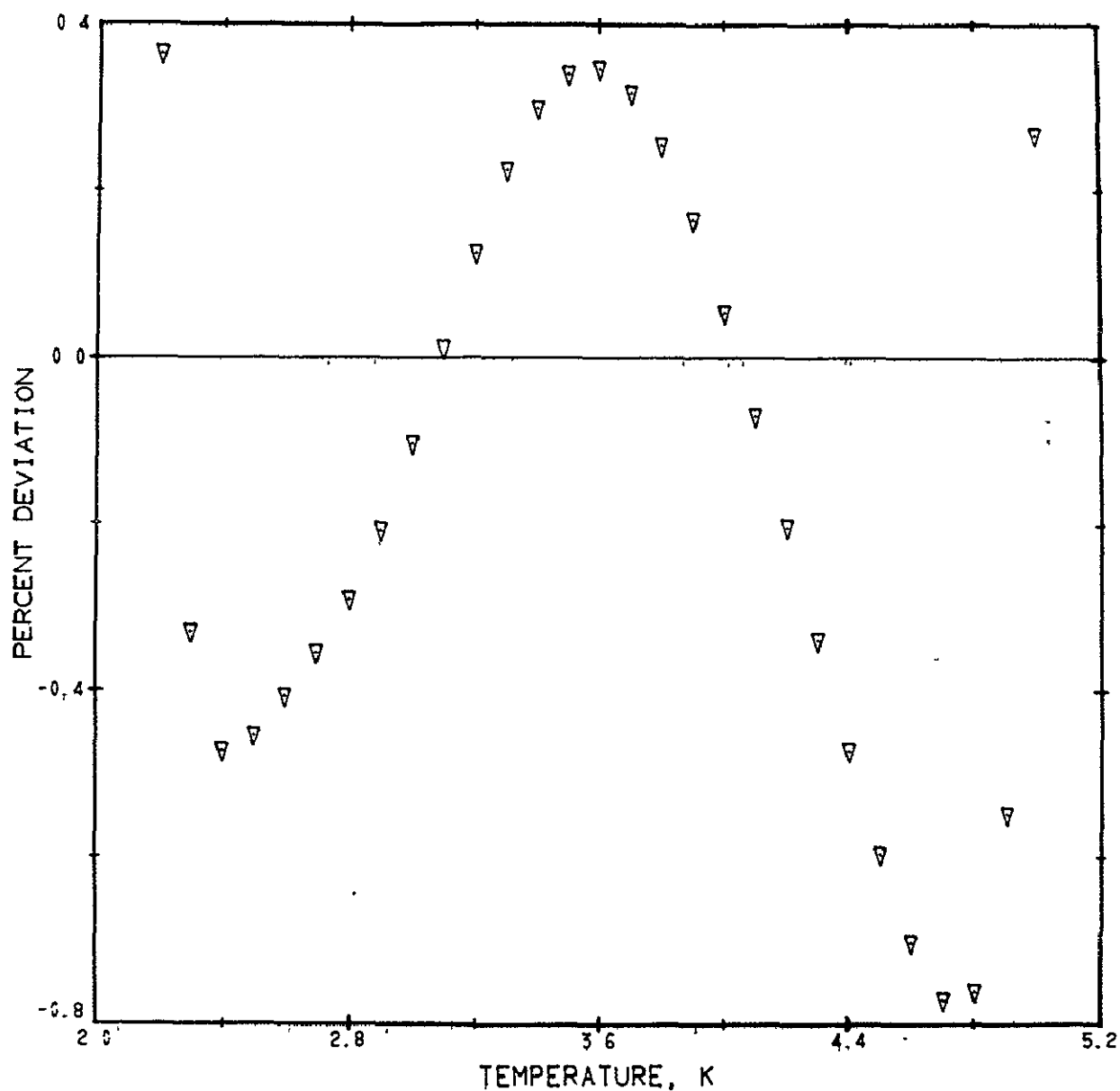


Figure 4. Deviation Plot of Entropies of Vaporization.

Percentage difference between the entropy of vaporization calculated with equation of state and entropy of vaporization calculated with the Clapeyron relationship.

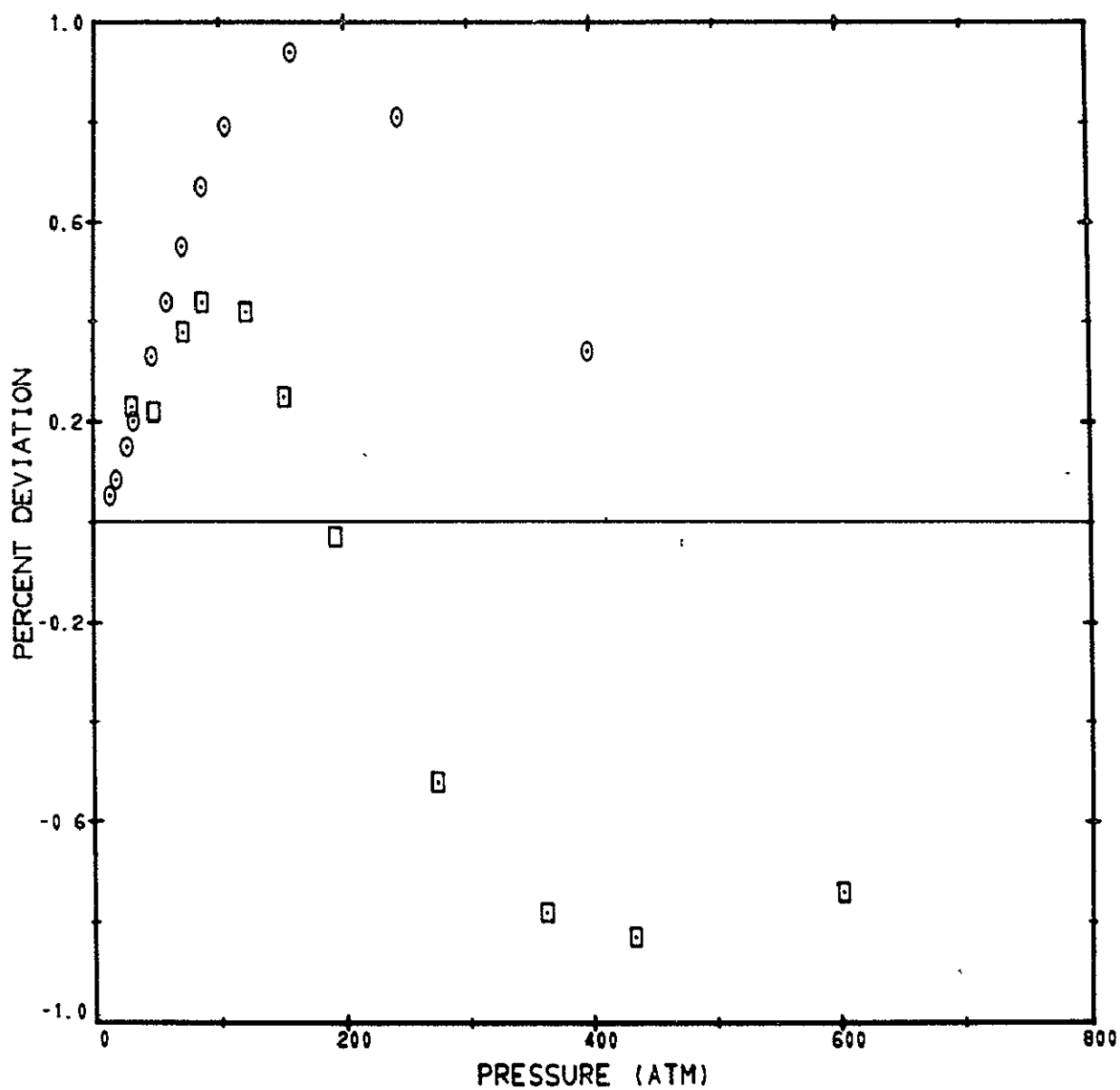


Figure 5. Deviation Plot between P-V-T Data by Sullivan [14] and Equation of State.

Percent deviation in pressure between experimental data of Sullivan [14] and equation of state. \odot = 120 K, \square = 80 K.

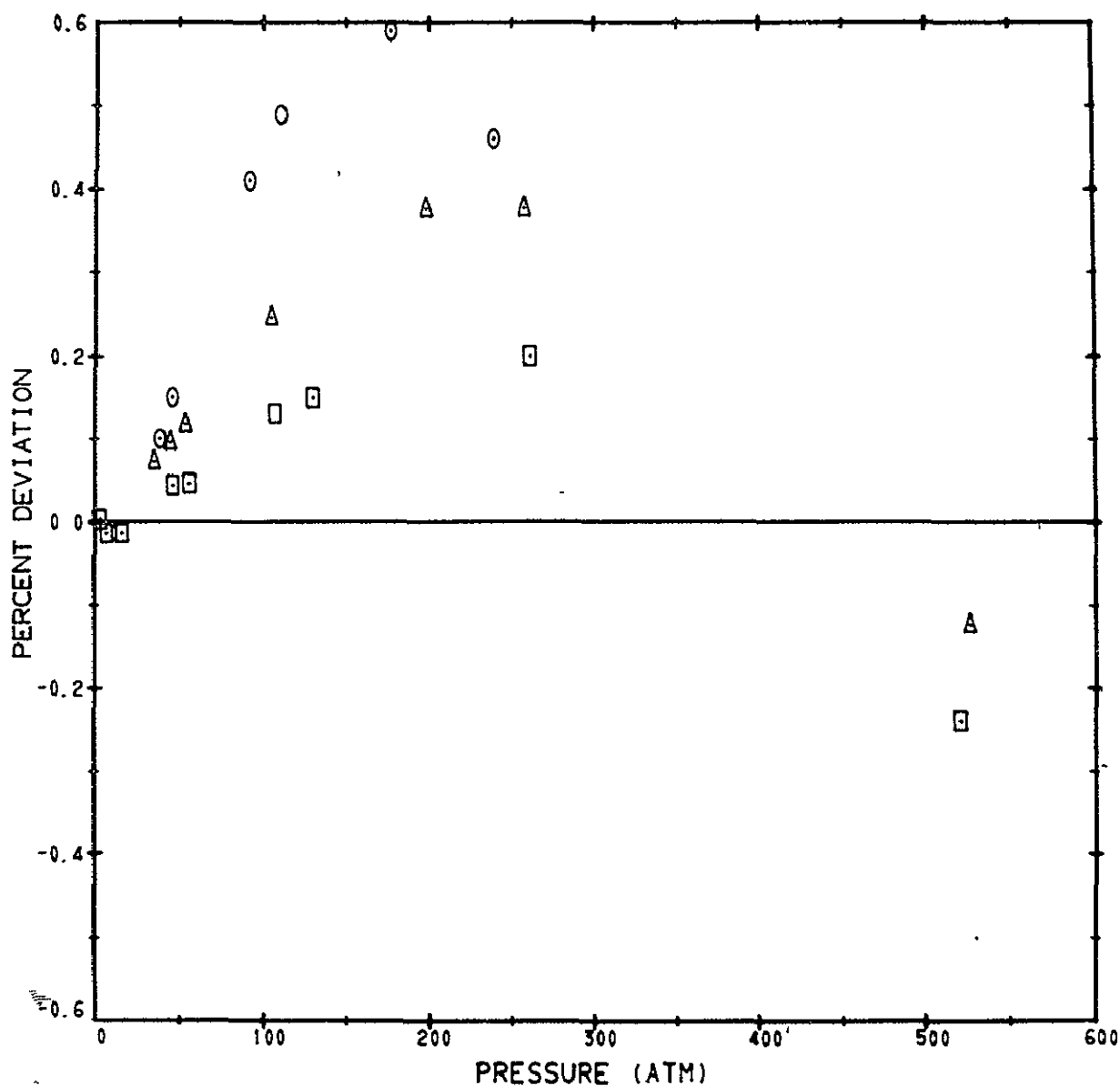
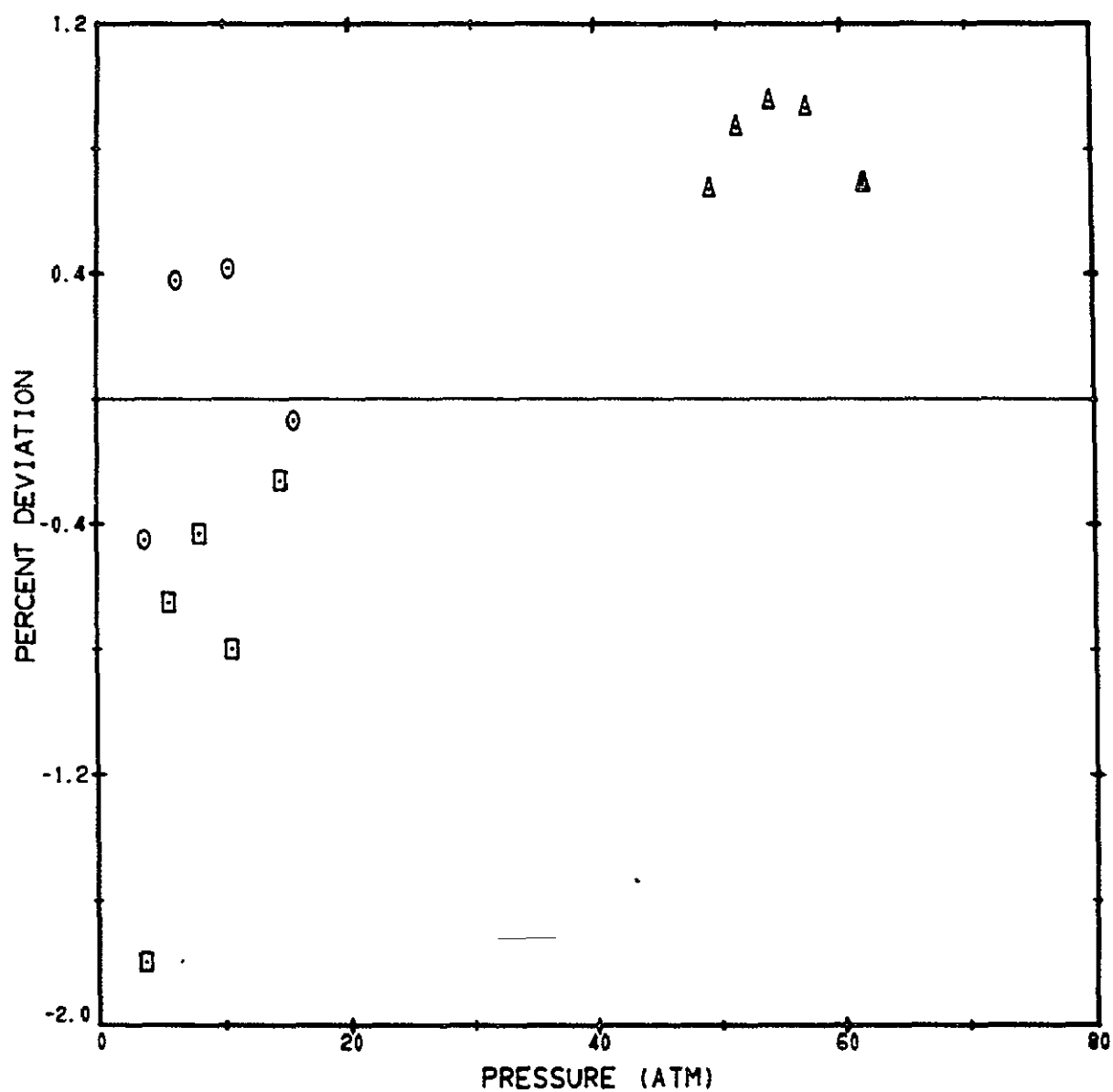


Figure 6. Deviation Plot between P-V-T Data by Canfield, et al. [13] and Equation of State.

Percent deviation in pressure between experimental data by Canfield et al [13] and equation of state. Δ = 223.13 K, \circ = 133.15 K, \square = 273.15 K.



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Figure 7. Deviation Plot between P-V-T Data by Lounasmaa [7] and Equation of State.

Percent deviation in density between experimental data by Lounasmaa [7] and equation of state. \square = 13.94 moles/liter, \odot = 19.25 moles/liter, Δ = 47.25 moles/liter.

TABLE 9. SATURATION PROPERTIES

TEMP K	PRESSURE MN/M ²	PRESSURE ATM	DENSITY MOL/LITER		ENTHALPY J/MOL		ENTROPY J/MOL-K		CP J/MOL-K		CV J/MOL-K		SPEED OF SOUND M/S	
			VAPOR	LIQUID	VAPOR	LIQUID	VAPOR	LIQUID	VAPOR	LIQUID	VAPOR	LIQUID	VAPOR	LIQUID
2.0	0.0031232	0.030823	0.1956		98.8		50.06		60.11		12.70		135	
2.1	0.0041331	0.040790	0.2485		100.5		48.67		60.43		12.74		137	
2.2	0.0053256	0.052559	0.3081	36.493		13.38	47.44	6.84	60.75	33.90	12.77	8.40	139	413
2.3	0.0067169	0.066290	0.3750	36.392	103.8	14.27	46.35	7.22	61.06	32.95	12.80	8.13	141	410
2.4	0.0083375	0.082285	0.4502	36.273	105.4	15.17	45.35	7.58	61.38	32.65	12.82	8.02	143	407
2.5	0.0102102	0.100767	0.5345	36.138	106.9	16.08	44.42	7.93	61.71	32.75	12.84	8.00	145	403
2.6	0.0123547	0.121932	0.6284	35.987	108.4	17.02	43.55	8.28	62.05	33.11	12.86	8.04	146	399
2.7	0.0147894	0.145960	0.7324	35.822	109.8	17.99	42.73	8.62	62.40	33.62	12.87	8.12	148	394
2.8	0.0175327	0.173034	0.8471	35.643	111.1	18.99	41.96	8.95	62.77	34.22	12.88	8.21	149	389
2.9	0.0206035	0.203340	0.9730	35.450	112.4	20.04	41.23	9.29	63.15	34.87	12.89	8.31	150	383
3.0	0.0240210	0.237069	1.1109	35.245	113.7	21.13	40.53	9.63	63.56	35.56	12.89	8.42	150	376
3.1	0.0278048	0.274412	1.2616	35.026	114.8	22.26	39.87	9.96	64.00	36.27	12.89	8.53	151	369
3.2	0.0319742	0.315561	1.4259	34.794	115.9	23.43	39.23	10.30	64.48	37.00	12.89	8.64	151	362
3.3	0.0365484	0.360705	1.6048	34.549	116.9	24.66	38.61	10.63	65.00	37.76	12.89	8.74	152	354
3.4	0.0415462	0.410029	1.7993	34.289	117.9	25.94	38.01	10.97	65.57	38.54	12.88	8.84	152	346
3.5	0.0469862	0.463718	2.0108	34.013	118.7	27.27	37.42	11.31	66.21	39.36	12.87	8.94	151	338
3.6	0.0528867	0.521951	2.2406	33.721	119.4	28.66	36.85	11.65	66.94	40.23	12.86	9.03	151	329
3.7	0.0592660	0.584910	2.4903	33.412	120.1	30.11	36.28	12.00	67.77	41.16	12.85	9.13	150	319
3.8	0.0661427	0.652778	2.7619	33.082	120.6	31.64	35.72	12.35	68.72	42.18	12.83	9.23	149	310
3.9	0.0735359	0.725743	3.0578	32.732	121.0	33.23	35.16	12.71	69.83	43.30	12.81	9.32	148	300
4.0	0.0814654	0.804001	3.3807	32.356	121.3	34.91	34.61	13.07	71.15	44.56	12.79	9.42	147	289
4.1	0.0899520	0.887758	3.7344	31.953	121.4	36.69	34.05	13.44	72.73	46.00	12.76	9.51	145	278
4.2	0.0990178	0.977230	4.1234	31.518	121.3	38.56	33.48	13.83	74.66	47.67	12.74	9.61	143	267
4.3	0.1086860	1.072647	4.5535	31.046	121.1	40.56	32.89	14.22	77.07	49.66	12.71	9.71	141	255
4.4	0.1189811	1.174252	5.0327	30.529	120.6	42.70	32.29	14.64	80.16	52.10	12.67	9.82	138	242
4.5	0.1299292	1.282301	5.5714	29.957	119.8	45.00	31.66	15.08	84.23	55.17	12.64	9.93	135	229
4.6	0.1415573	1.397062	6.1846	29.317	118.8	47.52	30.99	15.54	89.83	59.21	12.60	10.05	131	216
4.7	0.1538937	1.518813	6.8945	28.588	117.3	50.29	30.27	16.05	97.97	64.81	12.55	10.18	127	201
4.8	0.1669675	1.647841	7.7360	27.738	115.3	53.42	29.47	16.61	110.75	73.16	12.49	10.32	123	187
4.9	0.1808082	1.784438	8.7701	26.709	112.6	57.06	28.55	17.25	133.37	87.09	12.42	10.48	118	171
5.0	0.1954458	1.928900	10.1192	25.383	108.6	61.53	27.45	18.04	162.69	115.12	12.32	10.68	112	154
5.1	0.2109099	2.081519	12.1070	23.443	102.5	67.74	25.96	19.15	355.38	200.12	12.16	10.95	108	135

TABLE 10
Provisional Thermodynamic Properties for Helium-4
(pressure in MN/m²)

The number of significant figures given in the tables of properties is not justified on the basis of the uncertainty of the data, but is presented to maintain internal consistency.

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.001 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.0	0.06089	59.84	99.8	83.4	21.14	12.54	83
2.5	0.04847	64.53	110.3	89.7	20.98	12.51	93
3.0	0.04029	68.35	120.8	96.0	20.90	12.49	102
3.5	0.03448	71.57	131.3	102.3	20.86	12.48	110
4.0	0.03015	74.35	141.7	108.5	20.84	12.47	118
4.5	0.02678	76.81	152.1	114.8	20.83	12.47	125
5.0	0.02409	79.00	162.5	121.0	20.82	12.47	131
5.5	0.02190	80.99	172.9	127.2	20.81	12.47	138
6.0	0.02007	82.80	183.3	133.5	20.81	12.47	144
6.5	0.01852	84.46	193.7	139.7	20.81	12.47	150
7.0	0.01719	86.00	204.1	146.0	20.80	12.47	156
7.5	0.01605	87.44	214.5	152.2	20.80	12.47	161
8.0	0.01504	88.78	224.9	158.4	20.80	12.47	166
8.5	0.01416	90.04	235.3	164.7	20.80	12.47	172
9.0	0.01337	91.23	245.7	170.9	20.80	12.47	176
9.5	0.01266	92.36	256.1	177.2	20.80	12.47	181
10.0	0.01203	93.42	266.5	183.4	20.79	12.47	186
11.0	0.01094	95.40	287.3	195.9	20.79	12.47	195
12.0	0.01002	97.21	308.1	208.3	20.79	12.47	204
13.0	0.00925	98.88	328.9	220.8	20.79	12.47	212
14.0	0.00859	100.42	349.7	233.3	20.79	12.47	220
15.0	0.00802	101.85	370.5	245.8	20.79	12.47	228
16.0	0.00752	103.19	391.3	258.2	20.79	12.47	235
17.0	0.00708	104.45	412.1	270.7	20.79	12.47	243
18.0	0.00668	105.64	432.8	283.2	20.79	12.47	250
19.0	0.00633	106.77	453.6	295.7	20.79	12.47	256
20.0	0.00601	107.83	474.4	308.1	20.79	12.47	263
22.0	0.00547	109.81	516.0	333.1	20.79	12.47	276
24.0	0.00501	111.62	557.6	358.0	20.79	12.47	288
26.0	0.00463	113.29	599.1	383.0	20.79	12.47	300
28.0	0.00430	114.83	640.7	407.9	20.79	12.47	311
30.0	0.00401	116.26	682.3	432.8	20.79	12.47	322
32.0	0.00376	117.60	723.9	457.8	20.79	12.47	333
34.0	0.00354	118.86	765.4	482.7	20.79	12.47	343
36.0	0.00334	120.05	807.0	507.7	20.79	12.47	353
38.0	0.00317	121.17	848.6	532.6	20.79	12.47	363
40.0	0.00301	122.24	890.2	557.6	20.79	12.47	372
45.0	0.00267	124.69	994.1	619.9	20.79	12.47	395
50.0	0.00241	126.88	1098.0	682.3	20.79	12.47	416
55.0	0.00219	128.86	1201.9	744.6	20.79	12.47	436
60.0	0.00200	130.67	1305.9	807.0	20.79	12.47	456
65.0	0.00185	132.33	1409.8	869.3	20.79	12.47	474
70.0	0.00172	133.87	1513.7	931.7	20.79	12.47	492
75.0	0.00160	135.31	1617.7	994.1	20.79	12.47	510
80.0	0.00150	136.65	1721.6	1056.4	20.79	12.47	526
85.0	0.00141	137.91	1825.5	1118.8	20.79	12.47	542
90.0	0.00134	139.10	1929.4	1181.1	20.79	12.47	558
95.0	0.00127	140.22	2033.4	1243.5	20.79	12.47	573
100.0	0.00120	141.29	2137.3	1305.8	20.79	12.47	588

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.001 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.00109	143.27	2345.2	1430.6	20.79	12.47	617
120.0	0.00100	145.08	2553.0	1555.3	20.79	12.47	645
130.0	0.00093	146.74	2760.9	1680.0	20.79	12.47	671
140.0	0.00086	148.28	2968.7	1804.7	20.79	12.47	696
150.0	0.00080	149.71	3176.6	1929.4	20.79	12.47	721
160.0	0.00075	151.06	3384.4	2054.1	20.79	12.47	744
170.0	0.00071	152.32	3592.3	2178.8	20.79	12.47	767
180.0	0.00067	153.50	3800.2	2303.5	20.79	12.47	789
190.0	0.00063	154.63	4008.0	2428.2	20.79	12.47	811
200.0	0.00060	155.69	4215.9	2553.0	20.79	12.47	832
210.0	0.00057	156.71	4423.7	2677.7	20.79	12.47	853
220.0	0.00055	157.68	4631.6	2802.4	20.79	12.47	873
230.0	0.00052	158.60	4839.4	2927.1	20.79	12.47	892
240.0	0.00050	159.48	5047.3	3051.8	20.79	12.47	911
250.0	0.00048	160.33	5255.2	3176.5	20.79	12.47	930
260.0	0.00046	161.15	5463.0	3301.2	20.79	12.47	949
270.0	0.00045	161.93	5670.9	3425.9	20.79	12.47	967
280.0	0.00043	162.69	5878.7	3550.6	20.79	12.47	985
290.0	0.00041	163.42	6086.6	3675.4	20.79	12.47	1002
300.0	0.00040	164.12	6294.4	3800.1	20.79	12.47	1019
310.0	0.00039	164.80	6502.3	3924.8	20.79	12.47	1036
320.0	0.00038	165.46	6710.2	4049.5	20.79	12.47	1052
330.0	0.00036	166.10	6918.0	4174.2	20.79	12.47	1069
340.0	0.00035	166.72	7125.9	4298.9	20.79	12.47	1085
350.0	0.00034	167.33	7333.7	4423.6	20.79	12.47	1101
360.0	0.00033	167.91	7541.6	4548.3	20.79	12.47	1116
370.0	0.00033	168.48	7749.4	4673.1	20.79	12.47	1132
380.0	0.00032	169.04	7957.3	4797.8	20.79	12.47	1147
390.0	0.00031	169.58	8165.2	4922.5	20.79	12.47	1162
400.0	0.00030	170.10	8373.0	5047.2	20.79	12.47	1177
420.0	0.00029	171.12	8788.7	5296.6	20.79	12.47	1206
440.0	0.00027	172.08	9204.4	5546.0	20.79	12.47	1234
460.0	0.00026	173.01	9620.2	5795.5	20.79	12.47	1262
480.0	0.00025	173.89	10035.9	6044.9	20.79	12.47	1289
500.0	0.00024	174.74	10451.6	6294.3	20.79	12.47	1316
550.0	0.00022	176.72	11490.9	6917.9	20.79	12.47	1380
600.0	0.00020	178.53	12530.1	7541.4	20.79	12.47	1441
650.0	0.00019	180.19	13569.4	8165.0	20.79	12.47	1500
700.0	0.00017	181.73	14608.7	8788.5	20.79	12.47	1557
750.0	0.00016	183.17	15648.0	9412.1	20.79	12.47	1611
800.0	0.00015	184.51	16687.3	10035.6	20.79	12.47	1664
850.0	0.00014	185.77	17726.6	10659.2	20.79	12.47	1715
900.0	0.00013	186.96	18765.8	11282.8	20.79	12.47	1765
950.0	0.00013	188.08	19805.1	11906.3	20.79	12.47	1813
1000.0	0.00012	189.15	20844.4	12529.9	20.79	12.47	1861
1100.0	0.00011	191.13	22923.0	13777.0	20.79	12.47	1951
1200.0	0.00010	192.94	25001.5	15024.1	20.79	12.47	2038
1300.0	0.00009	194.60	27080.1	16271.2	20.79	12.47	2121
1400.0	0.00009	196.14	29158.7	17518.3	20.79	12.47	2201
1500.0	0.00008	197.58	31237.3	18765.4	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.005 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
* 2.174	0.29211	47.74	101.7	84.6	22.35	12.76	84
2.5	0.25007	50.83	108.9	88.9	21.82	12.64	91
3.0	0.20560	54.76	119.7	95.4	21.40	12.55	100
3.5	0.17490	58.04	130.3	101.8	21.19	12.51	109
4.0	0.15233	60.87	140.9	108.1	21.08	12.49	117
4.5	0.13499	63.34	151.4	114.4	21.00	12.48	124
5.0	0.12123	65.55	161.9	120.7	20.96	12.47	131
5.5	0.11004	67.55	172.4	126.9	20.92	12.47	138
6.0	0.10075	69.37	182.8	133.2	20.90	12.47	144
6.5	0.09291	71.04	193.3	139.5	20.88	12.47	150
7.0	0.08622	72.59	203.7	145.7	20.87	12.47	155
7.5	0.08042	74.03	214.2	152.0	20.86	12.47	161
8.0	0.07536	75.37	224.6	158.2	20.85	12.47	166
8.5	0.07090	76.64	235.0	164.5	20.84	12.47	171
9.0	0.06694	77.83	245.4	170.7	20.84	12.47	176
9.5	0.06341	78.96	255.8	177.0	20.83	12.47	181
10.0	0.06022	80.02	266.3	183.2	20.83	12.47	186
11.0	0.05473	82.01	287.1	195.7	20.82	12.47	195
12.0	0.05016	83.82	307.9	208.2	20.82	12.47	204
13.0	0.04629	85.49	328.7	220.7	20.81	12.47	212
14.0	0.04298	87.03	349.5	233.2	20.81	12.47	220
15.0	0.04011	88.46	370.3	245.7	20.81	12.47	228
16.0	0.03760	89.81	391.1	258.1	20.80	12.47	235
17.0	0.03538	91.07	411.9	270.6	20.80	12.47	243
18.0	0.03341	92.26	432.7	283.1	20.80	12.47	250
19.0	0.03165	93.38	453.5	295.6	20.80	12.47	256
20.0	0.03007	94.45	474.3	308.0	20.80	12.47	263
22.0	0.02734	96.43	515.9	333.0	20.79	12.47	276
24.0	0.02506	98.24	557.5	358.0	20.79	12.47	288
26.0	0.02313	99.90	599.1	382.9	20.79	12.47	300
28.0	0.02148	101.44	640.7	407.9	20.79	12.47	311
30.0	0.02004	102.88	682.3	432.8	20.79	12.47	322
32.0	0.01879	104.22	723.8	457.7	20.79	12.47	333
34.0	0.01769	105.48	765.4	482.7	20.79	12.47	343
36.0	0.01670	106.67	807.0	507.6	20.79	12.47	353
38.0	0.01582	107.79	848.6	532.6	20.79	12.47	363
40.0	0.01503	108.86	890.1	557.5	20.79	12.47	372
45.0	0.01336	111.31	994.1	619.9	20.79	12.47	395
50.0	0.01203	113.50	1098.0	682.3	20.79	12.47	416
55.0	0.01093	115.48	1202.0	744.6	20.79	12.47	436
60.0	0.01002	117.29	1305.9	807.0	20.79	12.47	456
65.0	0.00925	118.95	1409.8	869.3	20.79	12.47	474
70.0	0.00859	120.49	1513.8	931.7	20.79	12.47	492
75.0	0.00802	121.93	1617.7	994.0	20.79	12.47	510
80.0	0.00752	123.27	1721.6	1056.4	20.79	12.47	526
85.0	0.00707	124.53	1825.6	1118.8	20.79	12.47	542
90.0	0.00668	125.72	1929.5	1181.1	20.79	12.47	558
95.0	0.00633	126.84	2033.4	1243.5	20.79	12.47	573
100.0	0.00601	127.91	2137.3	1305.8	20.79	12.47	588

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.005 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.00547	129.89	2345.2	1430.5	20.79	12.47	617
120.0	0.00501	131.70	2553.1	1555.3	20.79	12.47	645
130.0	0.00463	133.36	2760.9	1680.0	20.79	12.47	671
140.0	0.00430	134.90	2968.8	1804.7	20.79	12.47	696
150.0	0.00401	136.33	3176.6	1929.4	20.79	12.47	721
160.0	0.00376	137.68	3384.5	2054.1	20.79	12.47	744
170.0	0.00354	138.94	3592.4	2178.8	20.79	12.47	767
180.0	0.00334	140.12	3800.2	2303.5	20.79	12.47	789
190.0	0.00316	141.25	4008.1	2428.2	20.79	12.47	811
200.0	0.00301	142.31	4215.9	2553.0	20.79	12.47	832
210.0	0.00286	143.33	4423.8	2677.7	20.79	12.47	853
220.0	0.00273	144.29	4631.6	2802.4	20.79	12.47	873
230.0	0.00261	145.22	4839.5	2927.1	20.79	12.47	892
240.0	0.00251	146.10	5047.4	3051.8	20.79	12.47	911
250.0	0.00241	146.95	5255.2	3176.5	20.79	12.47	930
260.0	0.00231	147.77	5463.1	3301.2	20.79	12.47	949
270.0	0.00223	148.55	5670.9	3425.9	20.79	12.47	967
280.0	0.00215	149.31	5878.8	3550.7	20.79	12.47	985
290.0	0.00207	150.04	6086.6	3675.4	20.79	12.47	1002
300.0	0.00200	150.74	6294.5	3800.1	20.79	12.47	1019
310.0	0.00194	151.42	6502.4	3924.8	20.79	12.47	1036
320.0	0.00188	152.08	6710.2	4049.5	20.79	12.47	1052
330.0	0.00182	152.72	6918.1	4174.2	20.79	12.47	1069
340.0	0.00177	153.34	7125.9	4298.9	20.79	12.47	1085
350.0	0.00172	153.95	7333.8	4423.6	20.79	12.47	1101
360.0	0.00167	154.53	7541.6	4548.3	20.79	12.47	1116
370.0	0.00163	155.10	7749.5	4673.1	20.79	12.47	1132
380.0	0.00158	155.65	7957.4	4797.8	20.79	12.47	1147
390.0	0.00154	156.19	8165.2	4922.5	20.79	12.47	1162
400.0	0.00150	156.72	8373.1	5047.2	20.79	12.47	1177
420.0	0.00143	157.73	8788.8	5296.6	20.79	12.47	1206
440.0	0.00137	158.70	9204.5	5546.0	20.79	12.47	1234
460.0	0.00131	159.63	9620.2	5795.5	20.79	12.47	1262
480.0	0.00125	160.51	10035.9	6044.9	20.79	12.47	1289
500.0	0.00120	161.36	10451.6	6294.3	20.79	12.47	1316
550.0	0.00109	163.34	11490.9	6917.9	20.79	12.47	1380
600.0	0.00100	165.15	12530.2	7541.4	20.79	12.47	1441
650.0	0.00093	166.81	13569.5	8165.0	20.79	12.47	1500
700.0	0.00086	168.35	14608.8	8788.5	20.79	12.47	1557
750.0	0.00080	169.79	15648.0	9412.1	20.79	12.47	1611
800.0	0.00075	171.13	16687.3	10035.7	20.79	12.47	1664
850.0	0.00071	172.39	17726.6	10659.2	20.79	12.47	1715
900.0	0.00067	173.58	18765.9	11282.8	20.79	12.47	1765
950.0	0.00063	174.70	19805.2	11906.3	20.79	12.47	1813
1000.0	0.00060	175.77	20844.5	12529.9	20.79	12.47	1861
1100.0	0.00055	177.75	22923.0	13777.0	20.79	12.47	1951
1200.0	0.00050	179.56	25001.6	15024.1	20.79	12.47	2038
1300.0	0.00046	181.22	27080.2	16271.2	20.79	12.47	2121
1400.0	0.00043	182.76	29158.7	17518.3	20.79	12.47	2201
1500.0	0.00040	184.19	31237.3	18765.5	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.01 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
* 2.489	36.15257	7.89	16.0	15.7	8.72	8.00	208
* 2.489	0.52515	44.51	106.7	87.7	23.13	12.84	89
2.5	0.52247	44.61	107.0	87.8	23.10	12.83	89
3.0	0.42255	48.72	118.2	94.6	22.11	12.64	99
3.5	0.35641	52.09	129.2	101.1	21.64	12.55	108
4.0	0.30884	54.96	139.9	107.5	21.39	12.51	116
4.5	0.27278	57.47	150.6	113.9	21.24	12.49	124
5.0	0.24442	59.71	161.2	120.2	21.14	12.48	131
5.5	0.22149	61.72	171.7	126.6	21.07	12.47	137
6.0	0.20255	63.55	182.2	132.9	21.02	12.47	143
6.5	0.18663	65.23	192.7	139.1	20.98	12.47	149
7.0	0.17306	66.78	203.2	145.4	20.96	12.47	155
7.5	0.16134	68.23	213.7	151.7	20.93	12.47	161
8.0	0.15112	69.58	224.1	158.0	20.92	12.47	166
8.5	0.14212	70.85	234.6	164.2	20.90	12.47	171
9.0	0.13414	72.04	245.0	170.5	20.89	12.47	176
9.5	0.12702	73.17	255.5	176.8	20.88	12.47	181
10.0	0.12061	74.24	265.9	183.0	20.87	12.47	186
11.0	0.10957	76.23	286.8	195.5	20.86	12.47	195
12.0	0.10039	78.04	307.6	208.0	20.84	12.47	204
13.0	0.09264	79.71	328.5	220.5	20.84	12.47	212
14.0	0.08599	81.25	349.3	233.0	20.83	12.47	220
15.0	0.08024	82.69	370.1	245.5	20.82	12.47	228
16.0	0.07521	84.03	391.0	258.0	20.82	12.47	235
17.0	0.07078	85.30	411.8	270.5	20.82	12.47	243
18.0	0.06684	86.49	432.6	283.0	20.81	12.47	250
19.0	0.06332	87.61	453.4	295.5	20.81	12.47	257
20.0	0.06015	88.68	474.2	307.9	20.81	12.47	263
22.0	0.05467	90.66	515.8	332.9	20.80	12.47	276
24.0	0.05011	92.47	557.4	357.9	20.80	12.47	288
26.0	0.04625	94.14	599.0	382.8	20.80	12.47	300
28.0	0.04295	95.68	640.6	407.8	20.80	12.47	311
30.0	0.04008	97.11	682.2	432.7	20.80	12.47	322
32.0	0.03758	98.46	723.8	457.7	20.79	12.47	333
34.0	0.03537	99.72	765.4	482.6	20.79	12.47	343
36.0	0.03340	100.90	807.0	507.6	20.79	12.47	353
38.0	0.03164	102.03	848.6	532.5	20.79	12.47	363
40.0	0.03006	103.09	890.1	557.5	20.79	12.47	372
45.0	0.02672	105.54	994.1	619.9	20.79	12.47	395
50.0	0.02405	107.73	1098.0	682.2	20.79	12.47	416
55.0	0.02186	109.72	1202.0	744.6	20.79	12.47	436
60.0	0.02004	111.52	1305.9	806.9	20.79	12.47	456
65.0	0.01850	113.19	1409.9	869.3	20.79	12.47	474
70.0	0.01718	114.73	1513.8	931.7	20.79	12.47	492
75.0	0.01603	116.16	1617.7	994.0	20.79	12.47	510
80.0	0.01503	117.50	1721.7	1056.4	20.79	12.47	526
85.0	0.01415	118.76	1825.6	1118.7	20.79	12.47	543
90.0	0.01336	119.95	1929.5	1181.1	20.79	12.47	558
95.0	0.01266	121.08	2033.5	1243.5	20.79	12.47	574
100.0	0.01203	122.14	2137.4	1305.8	20.79	12.47	588

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.01 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.01093	124.12	2345.3	1430.5	20.79	12.47	617
120.0	0.01002	125.93	2553.1	1555.3	20.79	12.47	645
130.0	0.00925	127.60	2761.0	1680.0	20.79	12.47	671
140.0	0.00859	129.14	2968.8	1804.7	20.79	12.47	696
150.0	0.00802	130.57	3176.7	1929.4	20.79	12.47	721
160.0	0.00752	131.91	3384.6	2054.1	20.79	12.47	744
170.0	0.00707	133.17	3592.4	2178.8	20.79	12.47	767
180.0	0.00668	134.36	3800.3	2303.5	20.79	12.47	789
190.0	0.00633	135.48	4008.1	2428.2	20.79	12.47	811
200.0	0.00601	136.55	4216.0	2553.0	20.79	12.47	832
210.0	0.00573	137.56	4423.8	2677.7	20.79	12.47	853
220.0	0.00547	138.53	4631.7	2802.4	20.79	12.47	873
230.0	0.00523	139.46	4839.6	2927.1	20.79	12.47	892
240.0	0.00501	140.34	5047.4	3051.8	20.79	12.47	912
250.0	0.00481	141.19	5255.3	3176.5	20.79	12.47	930
260.0	0.00463	142.00	5463.1	3301.2	20.79	12.47	949
270.0	0.00445	142.79	5671.0	3425.9	20.79	12.47	967
280.0	0.00430	143.54	5878.8	3550.7	20.79	12.47	985
290.0	0.00415	144.27	6086.7	3675.4	20.79	12.47	1002
300.0	0.00401	144.98	6294.6	3800.1	20.79	12.47	1019
310.0	0.00388	145.66	6502.4	3924.8	20.79	12.47	1036
320.0	0.00376	146.32	6710.3	4049.5	20.79	12.47	1053
330.0	0.00364	146.96	6918.1	4174.2	20.79	12.47	1069
340.0	0.00354	147.58	7126.0	4298.9	20.79	12.47	1085
350.0	0.00344	148.18	7333.8	4423.6	20.79	12.47	1101
360.0	0.00334	148.77	7541.7	4548.4	20.79	12.47	1116
370.0	0.00325	149.34	7749.6	4673.1	20.79	12.47	1132
380.0	0.00317	149.89	7957.4	4797.8	20.79	12.47	1147
390.0	0.00308	150.43	8165.3	4922.5	20.79	12.47	1162
400.0	0.00301	150.96	8373.1	5047.2	20.79	12.47	1177
420.0	0.00286	151.97	8788.8	5296.6	20.79	12.47	1206
440.0	0.00273	152.94	9204.6	5546.0	20.79	12.47	1234
460.0	0.00261	153.86	9620.3	5795.5	20.79	12.47	1262
480.0	0.00251	154.75	10036.0	6044.9	20.79	12.47	1289
500.0	0.00241	155.60	10451.7	6294.3	20.79	12.47	1316
550.0	0.00219	157.58	11491.0	6917.9	20.79	12.47	1380
600.0	0.00200	159.39	12530.3	7541.4	20.79	12.47	1441
650.0	0.00185	161.05	13569.5	8165.0	20.79	12.47	1500
700.0	0.00172	162.59	14608.8	8788.6	20.79	12.47	1557
750.0	0.00160	164.02	15648.1	9412.1	20.79	12.47	1611
800.0	0.00150	165.37	16687.4	10035.7	20.79	12.47	1664
850.0	0.00141	166.63	17726.7	10659.2	20.79	12.47	1715
900.0	0.00134	167.81	18766.0	11282.8	20.79	12.47	1765
950.0	0.00127	168.94	19805.2	11906.3	20.79	12.47	1813
1000.0	0.00120	170.00	20844.5	12529.9	20.79	12.47	1861
1100.0	0.00109	171.98	22923.1	13777.0	20.79	12.47	1951
1200.0	0.00100	173.79	25001.7	15024.1	20.79	12.47	2038
1300.0	0.00093	175.46	27080.2	16271.2	20.79	12.47	2121
1400.0	0.00086	177.00	29158.8	17518.4	20.79	12.47	2201
1500.0	0.00080	178.43	31237.4	18765.5	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.02 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.19867	7.92	16.3	15.8	8.70	7.97	210
* 2.881	35.48746	9.23	19.8	19.3	9.84	8.29	204
* 2.881	0.94843	41.37	112.2	91.1	24.38	12.89	93
3.0	0.89901	42.34	115.1	92.8	23.91	12.82	96
3.5	0.74237	45.92	126.7	99.7	22.69	12.63	106
4.0	0.63577	48.91	137.9	106.4	22.09	12.54	114
4.5	0.55745	51.49	148.8	112.9	21.74	12.50	122
5.0	0.49706	53.77	159.6	119.4	21.52	12.48	129
5.5	0.44888	55.81	170.3	125.8	21.37	12.47	136
6.0	0.40946	57.67	181.0	132.2	21.27	12.47	143
6.5	0.37656	59.36	191.6	138.5	21.19	12.46	149
7.0	0.34865	60.93	202.2	144.8	21.13	12.46	155
7.5	0.32466	62.39	212.7	151.1	21.09	12.46	160
8.0	0.30380	63.75	223.3	157.4	21.05	12.47	166
8.5	0.28550	65.02	233.8	163.7	21.02	12.47	171
9.0	0.26931	66.22	244.3	170.0	20.99	12.47	176
9.5	0.25487	67.36	254.8	176.3	20.97	12.47	181
10.0	0.24191	68.43	265.3	182.6	20.95	12.47	186
11.0	0.21962	70.43	286.2	195.1	20.93	12.47	195
12.0	0.20112	72.25	307.1	207.7	20.90	12.47	204
13.0	0.18551	73.92	328.0	220.2	20.89	12.47	212
14.0	0.17215	75.47	348.9	232.7	20.87	12.47	220
15.0	0.16060	76.91	369.8	245.2	20.86	12.47	228
16.0	0.15051	78.26	390.6	257.7	20.85	12.47	235
17.0	0.14162	79.52	411.5	270.2	20.85	12.47	243
18.0	0.13372	80.71	432.3	282.7	20.84	12.47	250
19.0	0.12666	81.84	453.2	295.2	20.83	12.47	257
20.0	0.12031	82.91	474.0	307.7	20.83	12.47	263
22.0	0.10935	84.89	515.6	332.7	20.82	12.47	276
24.0	0.10022	86.78	557.3	357.7	20.82	12.47	288
26.0	0.09250	88.37	598.9	382.7	20.81	12.47	300
28.0	0.08588	89.91	640.5	407.6	20.81	12.47	312
30.0	0.08015	91.35	682.1	432.6	20.81	12.47	322
32.0	0.07514	92.69	723.7	457.6	20.80	12.47	333
34.0	0.07072	93.95	765.3	482.5	20.80	12.47	343
36.0	0.06679	95.14	806.9	507.5	20.80	12.47	353
38.0	0.06327	96.26	848.5	532.4	20.80	12.47	363
40.0	0.06011	97.33	890.1	557.4	20.80	12.47	372
45.0	0.05343	99.78	994.1	619.8	20.79	12.47	395
50.0	0.04809	101.97	1098.1	682.2	20.79	12.47	416
55.0	0.04372	103.95	1202.0	744.5	20.79	12.47	437
60.0	0.04007	105.76	1306.0	806.9	20.79	12.47	456
65.0	0.03699	107.42	1409.9	869.3	20.79	12.47	475
70.0	0.03435	108.96	1513.9	931.6	20.79	12.47	492
75.0	0.03206	110.40	1617.8	994.0	20.79	12.47	510
80.0	0.03006	111.74	1721.8	1056.4	20.79	12.47	526
85.0	0.02829	113.00	1825.7	1118.7	20.79	12.47	543
90.0	0.02672	114.19	1929.6	1181.1	20.79	12.47	558
95.0	0.02531	115.31	2033.6	1243.4	20.79	12.47	574
100.0	0.02405	116.38	2137.5	1305.8	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.02 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.02186	118.36	2345.4	1430.5	20.79	12.47	617
120.0	0.02004	120.17	2553.2	1555.2	20.79	12.47	645
130.0	0.01850	121.83	2761.1	1680.0	20.79	12.47	671
140.0	0.01718	123.37	2969.0	1804.7	20.79	12.47	696
150.0	0.01603	124.81	3176.8	1929.4	20.79	12.47	721
160.0	0.01503	126.15	3384.7	2054.1	20.79	12.47	744
170.0	0.01415	127.41	3592.5	2178.8	20.79	12.47	767
180.0	0.01336	128.60	3800.4	2303.5	20.79	12.47	789
190.0	0.01266	129.72	4008.3	2428.3	20.79	12.47	811
200.0	0.01203	130.79	4216.1	2553.0	20.79	12.47	832
210.0	0.01145	131.80	4424.0	2677.7	20.79	12.47	853
220.0	0.01093	132.77	4631.8	2802.4	20.79	12.47	873
230.0	0.01046	133.69	4839.7	2927.1	20.79	12.47	892
240.0	0.01002	134.58	5047.6	3051.8	20.79	12.47	912
250.0	0.00962	135.43	5255.4	3176.5	20.79	12.47	930
260.0	0.00925	136.24	5463.3	3301.2	20.79	12.47	949
270.0	0.00891	137.03	5671.1	3426.0	20.79	12.47	967
280.0	0.00859	137.78	5879.0	3550.7	20.79	12.47	985
290.0	0.00829	138.51	6086.8	3675.4	20.79	12.47	1002
300.0	0.00802	139.22	6294.7	3800.1	20.79	12.47	1019
310.0	0.00776	139.90	6502.6	3924.8	20.79	12.47	1036
320.0	0.00752	140.56	6710.4	4049.5	20.79	12.47	1053
330.0	0.00729	141.20	6918.3	4174.2	20.79	12.47	1069
340.0	0.00707	141.82	7126.1	4298.9	20.79	12.47	1085
350.0	0.00687	142.42	7334.0	4423.7	20.79	12.47	1101
360.0	0.00668	143.00	7541.8	4548.4	20.79	12.47	1116
370.0	0.00650	143.57	7749.7	4673.1	20.79	12.47	1132
380.0	0.00633	144.13	7957.5	4797.8	20.79	12.47	1147
390.0	0.00617	144.67	8165.4	4922.5	20.79	12.47	1162
400.0	0.00601	145.19	8373.3	5047.2	20.79	12.47	1177
420.0	0.00573	146.21	8789.0	5296.6	20.79	12.47	1206
440.0	0.00547	147.18	9204.7	5546.1	20.79	12.47	1234
460.0	0.00523	148.10	9620.4	5795.5	20.79	12.47	1262
480.0	0.00501	148.98	10036.1	6044.9	20.79	12.47	1289
500.0	0.00481	149.83	10451.8	6294.3	20.79	12.47	1316
550.0	0.00437	151.81	11491.1	6917.9	20.79	12.47	1380
600.0	0.00401	153.62	12530.4	7541.5	20.79	12.47	1441
650.0	0.00370	155.29	13569.7	8165.0	20.79	12.47	1500
700.0	0.00344	156.83	14609.0	8788.6	20.79	12.47	1557
750.0	0.00321	158.26	15648.2	9412.1	20.79	12.47	1611
800.0	0.00301	159.60	16687.5	10035.7	20.79	12.47	1664
850.0	0.00283	160.86	17726.8	10659.3	20.79	12.47	1715
900.0	0.00267	162.05	18766.1	11282.8	20.79	12.47	1765
950.0	0.00253	163.17	19805.4	11906.4	20.79	12.47	1813
1000.0	0.00241	164.24	20844.6	12529.9	20.79	12.47	1861
1100.0	0.00219	166.22	22923.2	13777.0	20.79	12.47	1951
1200.0	0.00200	168.03	25001.8	15024.2	20.79	12.47	2038
1300.0	0.00185	169.69	27080.3	16271.3	20.79	12.47	2121
1400.0	0.00172	171.23	29158.9	17518.4	20.79	12.47	2201
1500.0	0.00160	172.67	31237.5	18765.5	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.03 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.26026	7.91	16.6	15.7	8.67	7.94	211
3.0	35.28917	9.61	21.3	20.4	10.24	8.41	203
* 3.154	34.90314	10.14	22.9	22.0	10.88	8.59	199
* 3.154	1.34827	39.52	115.4	93.2	25.54	12.89	95
3.5	1.16593	42.10	124.0	98.3	24.04	12.71	103
4.0	0.98406	45.22	135.7	105.2	22.91	12.58	112
4.5	0.85555	47.88	147.0	111.9	22.31	12.52	121
5.0	0.75871	50.21	158.0	118.5	21.94	12.49	128
5.5	0.68261	52.29	168.9	125.0	21.70	12.47	135
6.0	0.62098	54.17	179.7	131.4	21.53	12.46	142
6.5	0.56993	55.89	190.5	137.8	21.41	12.46	148
7.0	0.52687	57.47	201.2	144.2	21.31	12.46	154
7.5	0.49003	58.94	211.8	150.6	21.24	12.46	160
8.0	0.45811	60.31	222.4	156.9	21.18	12.46	165
8.5	0.43018	61.59	233.0	163.2	21.14	12.46	171
9.0	0.40551	62.80	243.5	169.6	21.10	12.46	176
9.5	0.38357	63.94	254.1	175.9	21.07	12.47	181
10.0	0.36391	65.02	264.6	182.2	21.04	12.47	186
11.0	0.33014	67.02	285.6	194.8	21.00	12.47	195
12.0	0.30217	68.85	306.6	207.3	20.96	12.47	204
13.0	0.27861	70.53	327.6	219.9	20.94	12.47	212
14.0	0.25848	72.08	348.5	232.4	20.92	12.47	220
15.0	0.24109	73.52	369.4	244.9	20.90	12.47	228
16.0	0.22590	74.87	390.3	257.5	20.89	12.47	235
17.0	0.21252	76.13	411.2	270.0	20.88	12.47	243
18.0	0.20064	77.33	432.0	282.5	20.87	12.47	250
19.0	0.19003	78.45	452.9	295.0	20.86	12.47	257
20.0	0.18049	79.52	473.8	307.5	20.85	12.47	263
22.0	0.16402	81.51	515.4	332.5	20.84	12.47	276
24.0	0.15032	83.32	557.1	357.5	20.83	12.47	289
26.0	0.13873	84.99	598.8	382.5	20.82	12.47	300
28.0	0.12881	86.53	640.4	407.5	20.82	12.47	312
30.0	0.12021	87.97	682.0	432.5	20.81	12.47	323
32.0	0.11269	89.31	723.7	457.4	20.81	12.47	333
34.0	0.10606	90.57	765.3	482.4	20.81	12.47	343
36.0	0.10016	91.76	806.9	507.4	20.81	12.47	353
38.0	0.09489	92.89	848.5	532.3	20.80	12.47	363
40.0	0.09014	93.96	890.1	557.3	20.80	12.47	372
45.0	0.08013	96.41	994.1	619.7	20.80	12.47	395
50.0	0.07212	98.60	1098.1	682.1	20.80	12.47	416
55.0	0.06556	100.58	1202.1	744.5	20.79	12.47	437
60.0	0.06010	102.39	1306.0	806.8	20.79	12.47	456
65.0	0.05548	104.05	1410.0	869.2	20.79	12.47	475
70.0	0.05152	105.59	1513.9	931.6	20.79	12.47	493
75.0	0.04808	107.03	1617.9	994.0	20.79	12.47	510
80.0	0.04508	108.37	1721.8	1056.3	20.79	12.47	527
85.0	0.04243	109.63	1825.8	1118.7	20.79	12.47	543
90.0	0.04007	110.82	1929.7	1181.1	20.79	12.47	558
95.0	0.03796	111.94	2033.7	1243.4	20.79	12.47	574
100.0	0.03607	113.01	2137.6	1305.8	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.03 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.03279	114.99	2345.5	1430.5	20.79	12.47	617
120.0	0.03006	116.80	2553.3	1555.2	20.79	12.47	645
130.0	0.02775	118.46	2761.2	1680.0	20.79	12.47	671
140.0	0.02576	120.00	2969.1	1804.7	20.79	12.47	696
150.0	0.02405	121.44	3176.9	1929.4	20.79	12.47	721
160.0	0.02255	122.78	3384.8	2054.1	20.79	12.47	744
170.0	0.02122	124.04	3592.7	2178.8	20.79	12.47	767
180.0	0.02004	125.23	3800.5	2303.5	20.79	12.47	790
190.0	0.01899	126.35	4008.4	2428.3	20.79	12.47	811
200.0	0.01804	127.42	4216.2	2553.0	20.79	12.47	832
210.0	0.01718	128.43	4424.1	2677.7	20.79	12.47	853
220.0	0.01640	129.40	4632.0	2802.4	20.79	12.47	873
230.0	0.01568	130.32	4839.8	2927.1	20.79	12.47	892
240.0	0.01503	131.21	5047.7	3051.8	20.79	12.47	912
250.0	0.01443	132.05	5255.5	3176.5	20.79	12.47	930
260.0	0.01388	132.87	5463.4	3301.3	20.79	12.47	949
270.0	0.01336	133.65	5671.3	3426.0	20.79	12.47	967
280.0	0.01288	134.41	5879.1	3550.7	20.79	12.47	985
290.0	0.01244	135.14	6087.0	3675.4	20.79	12.47	1002
300.0	0.01203	135.84	6294.8	3800.1	20.79	12.47	1019
310.0	0.01164	136.53	6502.7	3924.8	20.79	12.47	1036
320.0	0.01127	137.19	6710.5	4049.5	20.79	12.47	1053
330.0	0.01093	137.83	6918.4	4174.2	20.79	12.47	1069
340.0	0.01061	138.45	7126.3	4299.0	20.79	12.47	1085
350.0	0.01031	139.05	7334.1	4423.7	20.79	12.47	1101
360.0	0.01002	139.63	7542.0	4548.4	20.79	12.47	1116
370.0	0.00975	140.20	7749.8	4673.1	20.79	12.47	1132
380.0	0.00949	140.76	7957.7	4797.8	20.79	12.47	1147
390.0	0.00925	141.30	8165.5	4922.5	20.79	12.47	1162
400.0	0.00902	141.82	8373.4	5047.2	20.79	12.47	1177
420.0	0.00859	142.84	8789.1	5296.7	20.79	12.47	1206
440.0	0.00820	143.80	9204.8	5546.1	20.79	12.47	1234
460.0	0.00784	144.73	9620.5	5795.5	20.79	12.47	1262
480.0	0.00752	145.61	10036.2	6044.9	20.79	12.47	1289
500.0	0.00722	146.46	10452.0	6294.4	20.79	12.47	1316
550.0	0.00656	148.44	11491.2	6917.9	20.79	12.47	1380
600.0	0.00601	150.25	12530.5	7541.5	20.79	12.47	1441
650.0	0.00555	151.92	13569.8	8165.0	20.79	12.47	1500
700.0	0.00515	153.46	14609.1	8788.6	20.79	12.47	1557
750.0	0.00481	154.89	15648.4	9412.2	20.79	12.47	1611
800.0	0.00451	156.23	16687.6	10035.7	20.79	12.47	1664
850.0	0.00424	157.49	17726.9	10659.3	20.79	12.47	1715
900.0	0.00401	158.68	18766.2	11282.8	20.79	12.47	1765
950.0	0.00380	159.80	19805.5	11906.4	20.79	12.47	1813
1000.0	0.00361	160.87	20844.8	12530.0	20.79	12.47	1861
1100.0	0.00328	162.85	22923.3	13777.1	20.79	12.47	1951
1200.0	0.00301	164.66	25001.9	15024.2	20.79	12.47	2038
1300.0	0.00278	166.32	27080.5	16271.3	20.79	12.47	2121
1400.0	0.00258	167.86	29159.0	17518.4	20.79	12.47	2201
1500.0	0.00241	169.30	31237.6	18765.5	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.04 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.32101	7.90	16.8	15.7	8.63	7.92	212
3.0	35.36222	9.60	21.5	20.4	10.19	8.39	205
* 3.370	34.36819	10.87	25.5	24.4	11.85	8.81	194
* 3.370	1.73921	38.19	117.6	94.6	26.71	12.88	97
3.5	1.63955	39.18	121.0	96.6	25.84	12.80	100
4.0	1.35807	42.49	133.4	103.9	23.91	12.62	110
4.5	1.16896	45.24	145.1	110.8	22.96	12.53	119
5.0	1.03030	47.63	156.4	117.6	22.40	12.49	127
5.5	0.92316	49.75	167.5	124.2	22.05	12.47	135
6.0	0.83739	51.65	178.5	130.7	21.81	12.46	141
6.5	0.76692	53.39	189.3	137.2	21.63	12.46	148
7.0	0.70784	54.99	200.1	143.6	21.50	12.46	154
7.5	0.65751	56.47	210.8	150.0	21.40	12.46	160
8.0	0.61407	57.85	221.5	156.4	21.33	12.46	165
8.5	0.57617	59.14	232.2	162.7	21.26	12.46	170
9.0	0.54278	60.36	242.8	169.1	21.21	12.46	176
9.5	0.51313	61.50	253.4	175.4	21.16	12.46	181
10.0	0.48661	62.59	263.9	181.7	21.13	12.47	185
11.0	0.44115	64.60	285.0	194.4	21.07	12.47	195
12.0	0.40357	66.43	306.1	207.0	21.02	12.47	204
13.0	0.37195	68.11	327.1	219.5	20.99	12.47	212
14.0	0.34498	69.66	348.1	232.1	20.96	12.47	220
15.0	0.32169	71.11	369.0	244.7	20.94	12.47	228
16.0	0.30137	72.46	389.9	257.2	20.92	12.47	236
17.0	0.28348	73.73	410.9	269.7	20.91	12.47	243
18.0	0.26760	74.92	431.8	282.3	20.89	12.48	250
19.0	0.25343	76.05	452.6	294.8	20.88	12.48	257
20.0	0.24068	77.12	473.5	307.3	20.87	12.48	263
22.0	0.21870	79.11	515.3	332.3	20.86	12.48	276
24.0	0.20041	80.92	557.0	357.4	20.85	12.48	289
26.0	0.18495	82.59	598.6	382.4	20.84	12.48	300
28.0	0.17172	84.14	640.3	407.4	20.83	12.48	312
30.0	0.16025	85.57	682.0	432.3	20.82	12.48	323
32.0	0.15022	86.92	723.6	457.3	20.82	12.48	333
34.0	0.14138	88.18	765.2	482.3	20.82	12.47	344
36.0	0.13352	89.37	806.9	507.3	20.81	12.47	353
38.0	0.12649	90.49	848.5	532.2	20.81	12.47	363
40.0	0.12016	91.56	890.1	557.2	20.81	12.47	373
45.0	0.10681	94.01	994.1	619.6	20.80	12.47	395
50.0	0.09613	96.20	1098.1	682.0	20.80	12.47	416
55.0	0.08740	98.19	1202.1	744.4	20.80	12.47	437
60.0	0.08012	100.00	1306.1	806.8	20.79	12.47	456
65.0	0.07396	101.66	1410.1	869.2	20.79	12.47	475
70.0	0.06868	103.20	1514.0	931.6	20.79	12.47	493
75.0	0.06410	104.64	1618.0	993.9	20.79	12.47	510
80.0	0.06010	105.98	1721.9	1056.3	20.79	12.47	527
85.0	0.05656	107.24	1825.9	1118.7	20.79	12.47	543
90.0	0.05342	108.43	1929.8	1181.0	20.79	12.47	559
95.0	0.05061	109.55	2033.8	1243.4	20.79	12.47	574
100.0	0.04808	110.62	2137.7	1305.8	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.04 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.04371	112.60	2345.6	1430.5	20.79	12.47	617
120.0	0.04007	114.41	2553.5	1555.2	20.79	12.47	645
130.0	0.03699	116.07	2761.3	1679.9	20.79	12.47	671
140.0	0.03435	117.61	2969.2	1804.7	20.79	12.47	696
150.0	0.03206	119.04	3177.1	1929.4	20.79	12.47	721
160.0	0.03006	120.39	3384.9	2054.1	20.79	12.47	744
170.0	0.02829	121.65	3592.8	2178.8	20.79	12.47	767
180.0	0.02672	122.83	3800.7	2303.5	20.79	12.47	790
190.0	0.02531	123.96	4008.5	2428.3	20.79	12.47	811
200.0	0.02405	125.02	4216.4	2553.0	20.79	12.47	832
210.0	0.02290	126.04	4424.2	2677.7	20.79	12.47	853
220.0	0.02186	127.01	4632.1	2802.4	20.79	12.47	873
230.0	0.02091	127.93	4840.0	2927.1	20.79	12.47	892
240.0	0.02004	128.81	5047.8	3051.8	20.79	12.47	912
250.0	0.01924	129.66	5255.7	3176.6	20.79	12.47	930
260.0	0.01850	130.48	5463.5	3301.3	20.79	12.47	949
270.0	0.01781	131.26	5671.4	3426.0	20.79	12.47	967
280.0	0.01718	132.02	5879.2	3550.7	20.79	12.47	985
290.0	0.01659	132.75	6087.1	3675.4	20.79	12.47	1002
300.0	0.01603	133.45	6295.0	3800.1	20.79	12.47	1019
310.0	0.01552	134.13	6502.8	3924.8	20.79	12.47	1036
320.0	0.01503	134.79	6710.7	4049.5	20.79	12.47	1053
330.0	0.01458	135.43	6918.5	4174.3	20.79	12.47	1069
340.0	0.01415	136.05	7126.4	4299.0	20.79	12.47	1085
350.0	0.01374	136.66	7334.2	4423.7	20.79	12.47	1101
360.0	0.01336	137.24	7542.1	4548.4	20.79	12.47	1116
370.0	0.01300	137.81	7750.0	4673.1	20.79	12.47	1132
380.0	0.01266	138.37	7957.8	4797.8	20.79	12.47	1147
390.0	0.01233	138.91	8165.7	4922.5	20.79	12.47	1162
400.0	0.01203	139.43	8373.5	5047.3	20.79	12.47	1177
420.0	0.01145	140.45	8789.2	5296.7	20.79	12.47	1206
440.0	0.01093	141.41	9205.0	5546.1	20.79	12.47	1234
460.0	0.01046	142.34	9620.7	5795.5	20.79	12.47	1262
480.0	0.01002	143.22	10036.4	6045.0	20.79	12.47	1289
500.0	0.00962	144.07	10452.1	6294.4	20.79	12.47	1316
550.0	0.00875	146.05	11491.4	6917.9	20.79	12.47	1380
600.0	0.00802	147.86	12530.7	7541.5	20.79	12.47	1441
650.0	0.00740	149.52	13569.9	8165.1	20.79	12.47	1500
700.0	0.00687	151.06	14609.2	8788.6	20.79	12.47	1557
750.0	0.00641	152.50	15648.5	9412.2	20.79	12.47	1611
800.0	0.00601	153.84	16687.8	10035.7	20.79	12.47	1664
850.0	0.00566	155.10	17727.1	10659.3	20.79	12.47	1715
900.0	0.00535	156.29	18766.3	11282.9	20.79	12.47	1765
950.0	0.00506	157.41	19805.6	11906.4	20.79	12.47	1813
1000.0	0.00481	158.48	20844.9	12530.0	20.79	12.47	1861
1100.0	0.00437	160.46	22923.5	13777.1	20.79	12.47	1951
1200.0	0.00401	162.27	25002.0	15024.2	20.79	12.47	2038
1300.0	0.00370	163.93	27080.6	16271.3	20.79	12.47	2121
1400.0	0.00344	165.47	29159.1	17518.5	20.79	12.47	2201
1500.0	0.00321	166.91	31237.7	18765.6	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.05 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.38094	7.89	17.1	15.7	8.60	7.89	214
3.0	35.43400	9.58	21.7	20.3	10.14	8.37	206
3.5	34.04205	11.30	27.3	25.9	12.49	8.93	191
* 3.552	33.86325	11.49	28.0	26.5	12.82	8.99	189
* 3.552	2.12809	37.12	119.1	95.6	27.95	12.87	98
4.0	1.76384	40.25	130.9	102.5	25.15	12.66	108
4.5	1.50004	43.12	143.1	109.7	23.71	12.55	118
5.0	1.31291	45.57	154.7	116.6	22.92	12.49	126
5.5	1.17111	47.73	166.0	123.3	22.43	12.47	134
6.0	1.05901	49.67	177.2	129.9	22.11	12.46	141
6.5	0.96770	51.43	188.1	136.5	21.87	12.45	147
7.0	0.89165	53.04	199.0	143.0	21.70	12.45	153
7.5	0.82718	54.54	209.9	149.4	21.57	12.45	159
8.0	0.77174	55.93	220.6	155.8	21.47	12.46	165
8.5	0.72351	57.23	231.3	162.2	21.39	12.46	170
9.0	0.68113	58.45	242.0	168.6	21.32	12.46	175
9.5	0.64356	59.60	252.7	175.0	21.26	12.46	180
10.0	0.61003	60.69	263.3	181.3	21.22	12.46	185
11.0	0.55264	62.71	284.4	194.0	21.14	12.47	195
12.0	0.50530	64.54	305.6	206.6	21.09	12.47	204
13.0	0.46553	66.23	326.6	219.2	21.04	12.47	212
14.0	0.43165	67.79	347.6	231.8	21.01	12.47	220
15.0	0.40241	69.23	368.6	244.4	20.98	12.47	228
16.0	0.37692	70.59	389.6	256.9	20.96	12.48	236
17.0	0.35450	71.86	410.5	269.5	20.94	12.48	243
18.0	0.33461	73.05	431.5	282.0	20.92	12.48	250
19.0	0.31685	74.18	452.4	294.6	20.91	12.48	257
20.0	0.30089	75.26	473.3	307.1	20.90	12.48	264
22.0	0.27338	77.25	515.1	332.2	20.88	12.48	276
24.0	0.25050	79.06	556.8	357.2	20.86	12.48	289
26.0	0.23117	80.73	598.5	382.2	20.85	12.48	301
28.0	0.21461	82.28	640.2	407.2	20.84	12.48	312
30.0	0.20028	83.71	681.9	432.2	20.83	12.48	323
32.0	0.18774	85.06	723.5	457.2	20.83	12.48	333
34.0	0.17669	86.32	765.2	482.2	20.82	12.48	344
36.0	0.16686	87.51	806.8	507.2	20.82	12.48	354
38.0	0.15808	88.64	848.5	532.2	20.82	12.48	363
40.0	0.15017	89.70	890.1	557.1	20.81	12.48	373
45.0	0.13349	92.16	994.1	619.6	20.81	12.47	395
50.0	0.12014	94.35	1098.2	682.0	20.80	12.47	417
55.0	0.10922	96.33	1202.2	744.4	20.80	12.47	437
60.0	0.10012	98.14	1306.1	806.8	20.80	12.47	456
65.0	0.09243	99.80	1410.1	869.1	20.79	12.47	475
70.0	0.08583	101.34	1514.1	931.5	20.79	12.47	493
75.0	0.08011	102.78	1618.1	993.9	20.79	12.47	510
80.0	0.07511	104.12	1722.0	1056.3	20.79	12.47	527
85.0	0.07069	105.38	1826.0	1118.6	20.79	12.47	543
90.0	0.06677	106.57	1929.9	1181.0	20.79	12.47	559
95.0	0.06325	107.69	2033.9	1243.4	20.79	12.47	574
100.0	0.06009	108.76	2137.8	1305.8	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.05 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.05463	110.74	2345.7	1430.5	20.79	12.47	617
120.0	0.05008	112.55	2553.6	1555.2	20.79	12.47	645
130.0	0.04623	114.21	2761.4	1679.9	20.79	12.47	671
140.0	0.04293	115.75	2969.3	1804.7	20.79	12.47	697
150.0	0.04007	117.19	3177.2	1929.4	20.79	12.47	721
160.0	0.03757	118.53	3385.1	2054.1	20.79	12.47	745
170.0	0.03536	119.79	3592.9	2178.8	20.79	12.47	767
180.0	0.03340	120.98	3800.8	2303.5	20.79	12.47	790
190.0	0.03164	122.10	4008.6	2428.3	20.79	12.47	811
200.0	0.03006	123.17	4216.5	2553.0	20.79	12.47	832
210.0	0.02863	124.18	4424.4	2677.7	20.79	12.47	853
220.0	0.02733	125.15	4632.2	2802.4	20.79	12.47	873
230.0	0.02614	126.07	4840.1	2927.1	20.79	12.47	893
240.0	0.02505	126.96	5047.9	3051.8	20.79	12.47	912
250.0	0.02405	127.81	5255.8	3176.6	20.79	12.47	931
260.0	0.02312	128.62	5463.7	3301.3	20.79	12.47	949
270.0	0.02227	129.41	5671.5	3426.0	20.79	12.47	967
280.0	0.02147	130.16	5879.4	3550.7	20.79	12.47	985
290.0	0.02073	130.89	6087.2	3675.4	20.79	12.47	1002
300.0	0.02004	131.60	6295.1	3800.1	20.79	12.47	1019
310.0	0.01939	132.28	6503.0	3924.8	20.79	12.47	1036
320.0	0.01879	132.94	6710.8	4049.6	20.79	12.47	1053
330.0	0.01822	133.58	6918.7	4174.3	20.79	12.47	1069
340.0	0.01768	134.20	7126.5	4299.0	20.79	12.47	1085
350.0	0.01718	134.80	7334.4	4423.7	20.79	12.47	1101
360.0	0.01670	135.39	7542.2	4548.4	20.79	12.47	1117
370.0	0.01625	135.96	7750.1	4673.1	20.79	12.47	1132
380.0	0.01582	136.51	7957.9	4797.8	20.79	12.47	1147
390.0	0.01542	137.05	8165.8	4922.6	20.79	12.47	1162
400.0	0.01503	137.58	8373.7	5047.3	20.79	12.47	1177
420.0	0.01432	138.59	8789.4	5296.7	20.79	12.47	1206
440.0	0.01367	139.56	9205.1	5546.1	20.79	12.47	1234
460.0	0.01307	140.48	9620.8	5795.5	20.79	12.47	1262
480.0	0.01253	141.37	10036.5	6045.0	20.79	12.47	1289
500.0	0.01203	142.21	10452.2	6294.4	20.79	12.47	1316
550.0	0.01093	144.20	11491.5	6918.0	20.79	12.47	1380
600.0	0.01002	146.00	12530.8	7541.5	20.79	12.47	1441
650.0	0.00925	147.67	13570.1	8165.1	20.79	12.47	1500
700.0	0.00859	149.21	14609.3	8788.6	20.79	12.47	1557
750.0	0.00802	150.64	15648.6	9412.2	20.79	12.47	1611
800.0	0.00752	151.98	16687.9	10035.8	20.79	12.47	1664
850.0	0.00707	153.24	17727.2	10659.3	20.79	12.47	1715
900.0	0.00668	154.43	18766.5	11282.9	20.79	12.47	1765
950.0	0.00633	155.56	19805.7	11906.5	20.79	12.47	1814
1000.0	0.00601	156.62	20845.0	12530.0	20.79	12.47	1861
1100.0	0.00547	158.60	22923.6	13777.1	20.79	12.47	1951
1200.0	0.00501	160.41	25002.1	15024.3	20.79	12.47	2038
1300.0	0.00463	162.08	27080.7	16271.4	20.79	12.47	2121
1400.0	0.00430	163.62	29159.3	17518.5	20.79	12.47	2201
1500.0	0.00401	165.05	31237.8	18765.6	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.06 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.44007	7.87	17.3	15.7	8.57	7.87	215
3.0	35.50457	9.56	21.9	20.3	10.09	8.35	208
3.5	34.13664	11.27	27.5	25.8	12.39	8.91	193
* 3.711	33.37627	12.04	30.3	28.5	13.82	9.14	184
* 3.711	2.51917	36.22	120.1	96.3	29.30	12.84	99
4.0	2.21009	38.31	128.2	101.0	26.75	12.70	106
4.5	1.85177	41.32	140.9	108.5	24.59	12.56	116
5.0	1.60783	43.85	152.9	115.6	23.50	12.50	125
5.5	1.42707	46.05	164.5	122.5	22.85	12.47	133
6.0	1.28616	48.02	175.8	129.2	22.42	12.45	140
6.5	1.17248	49.80	187.0	135.8	22.13	12.45	147
7.0	1.07842	51.44	198.0	142.3	21.91	12.45	153
7.5	0.99910	52.94	208.9	148.8	21.75	12.45	159
8.0	0.93116	54.34	219.7	155.3	21.62	12.45	164
8.5	0.87223	55.65	230.5	161.7	21.52	12.45	170
9.0	0.82057	56.88	241.2	168.1	21.43	12.46	175
9.5	0.77489	58.03	251.9	174.5	21.36	12.46	180
10.0	0.73416	59.13	262.6	180.9	21.31	12.46	185
11.0	0.66462	61.15	283.9	193.6	21.21	12.47	195
12.0	0.60737	63.00	305.0	206.2	21.15	12.47	204
13.0	0.55935	64.69	326.2	218.9	21.09	12.47	212
14.0	0.51848	66.25	347.2	231.5	21.05	12.47	220
15.0	0.48325	67.70	368.3	244.1	21.02	12.47	228
16.0	0.45256	69.05	389.3	256.7	20.99	12.48	236
17.0	0.42557	70.33	410.2	269.3	20.97	12.48	243
18.0	0.40165	71.52	431.2	281.8	20.95	12.48	250
19.0	0.38030	72.66	452.1	294.4	20.93	12.48	257
20.0	0.36112	73.73	473.1	306.9	20.92	12.48	264
22.0	0.32806	75.72	514.9	332.0	20.89	12.48	277
24.0	0.30058	77.54	556.6	357.0	20.88	12.48	289
26.0	0.27737	79.21	598.4	382.1	20.86	12.48	301
28.0	0.25750	80.76	640.1	407.1	20.85	12.48	312
30.0	0.24029	82.19	681.8	432.1	20.84	12.48	323
32.0	0.22525	83.54	723.5	457.1	20.84	12.48	334
34.0	0.21198	84.80	765.1	482.1	20.83	12.48	344
36.0	0.20019	85.99	806.8	507.1	20.83	12.48	354
38.0	0.18965	87.12	848.4	532.1	20.82	12.48	363
40.0	0.18017	88.19	890.1	557.0	20.82	12.48	373
45.0	0.16015	90.64	994.1	619.5	20.81	12.48	395
50.0	0.14414	92.83	1098.2	681.9	20.81	12.48	417
55.0	0.13104	94.81	1202.2	744.3	20.80	12.47	437
60.0	0.12013	96.62	1306.2	806.7	20.80	12.47	456
65.0	0.11089	98.29	1410.2	869.1	20.80	12.47	475
70.0	0.10298	99.83	1514.2	931.5	20.80	12.47	493
75.0	0.09612	101.26	1618.1	993.9	20.79	12.47	510
80.0	0.09011	102.61	1722.1	1056.2	20.79	12.47	527
85.0	0.08482	103.87	1826.1	1118.6	20.79	12.47	543
90.0	0.08011	105.05	1930.0	1181.0	20.79	12.47	559
95.0	0.07589	106.18	2034.0	1243.4	20.79	12.47	574
100.0	0.07210	107.24	2137.9	1305.7	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.06 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.06555	109.23	2345.8	1430.5	20.79	12.47	618
120.0	0.06009	111.03	2553.7	1555.2	20.79	12.47	645
130.0	0.05547	112.70	2761.6	1679.9	20.79	12.47	671
140.0	0.05151	114.24	2969.4	1804.7	20.79	12.47	697
150.0	0.04808	115.67	3177.3	1929.4	20.79	12.47	721
160.0	0.04508	117.01	3385.2	2054.1	20.79	12.47	745
170.0	0.04243	118.27	3593.0	2178.8	20.79	12.47	768
180.0	0.04007	119.46	3800.9	2303.6	20.79	12.47	790
190.0	0.03796	120.59	4008.8	2428.3	20.79	12.47	811
200.0	0.03607	121.65	4216.6	2553.0	20.79	12.47	832
210.0	0.03435	122.67	4424.5	2677.7	20.79	12.47	853
220.0	0.03279	123.63	4632.4	2802.4	20.79	12.47	873
230.0	0.03136	124.56	4840.2	2927.1	20.79	12.47	893
240.0	0.03006	125.44	5048.1	3051.9	20.79	12.47	912
250.0	0.02886	126.29	5255.9	3176.6	20.79	12.47	931
260.0	0.02775	127.11	5463.8	3301.3	20.79	12.47	949
270.0	0.02672	127.89	5671.7	3426.0	20.79	12.47	967
280.0	0.02577	128.65	5879.5	3550.7	20.79	12.47	985
290.0	0.02488	129.38	6087.4	3675.4	20.79	12.47	1002
300.0	0.02405	130.08	6295.2	3800.1	20.79	12.47	1019
310.0	0.02327	130.76	6503.1	3924.9	20.79	12.47	1036
320.0	0.02255	131.42	6710.9	4049.6	20.79	12.47	1053
330.0	0.02186	132.06	6918.8	4174.3	20.79	12.47	1069
340.0	0.02122	132.68	7126.7	4299.0	20.79	12.47	1085
350.0	0.02061	133.29	7334.5	4423.7	20.79	12.47	1101
360.0	0.02004	133.87	7542.4	4548.4	20.79	12.47	1117
370.0	0.01950	134.44	7750.2	4673.1	20.79	12.47	1132
380.0	0.01899	134.99	7958.1	4797.9	20.79	12.47	1147
390.0	0.01850	135.53	8165.9	4922.6	20.79	12.47	1162
400.0	0.01804	136.06	8373.8	5047.3	20.79	12.47	1177
420.0	0.01718	137.07	8789.5	5296.7	20.79	12.47	1206
440.0	0.01640	138.04	9205.2	5546.1	20.79	12.47	1234
460.0	0.01569	138.97	9620.9	5795.6	20.79	12.47	1262
480.0	0.01503	139.85	10036.6	6045.0	20.79	12.47	1289
500.0	0.01443	140.70	10452.4	6294.4	20.79	12.47	1316
550.0	0.01312	142.68	11491.6	6918.0	20.79	12.47	1380
600.0	0.01203	144.49	12530.9	7541.5	20.79	12.47	1441
650.0	0.01110	146.15	13570.2	8165.1	20.79	12.47	1500
700.0	0.01031	147.69	14609.5	8788.7	20.79	12.47	1557
750.0	0.00962	149.13	15648.7	9412.2	20.79	12.47	1611
800.0	0.00902	150.47	16688.0	10035.8	20.79	12.47	1664
850.0	0.00849	151.73	17727.3	10659.4	20.79	12.47	1715
900.0	0.00802	152.92	18766.6	11282.9	20.79	12.47	1765
950.0	0.00760	154.04	19805.9	11906.5	20.79	12.47	1814
1000.0	0.00722	155.11	20845.1	12530.0	20.79	12.47	1861
1100.0	0.00656	157.09	22923.7	13777.2	20.79	12.47	1951
1200.0	0.00601	158.90	25002.3	15024.3	20.79	12.47	2038
1300.0	0.00555	160.56	27080.8	16271.4	20.79	12.47	2121
1400.0	0.00515	162.10	29159.4	17518.5	20.79	12.47	2201
1500.0	0.00481	163.53	31237.9	18765.6	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.07 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.49844	7.86	17.6	15.6	8.53	7.84	217
3.0	35.57398	9.54	22.2	20.2	10.05	8.33	209
3.5	34.22896	11.25	27.7	25.7	12.29	8.89	195
* 3.853	32.89909	12.54	32.5	30.3	14.91	9.28	180
* 3.853	2.91571	35.42	120.8	96.8	30.80	12.82	99
4.0	2.71034	36.54	125.2	99.4	28.93	12.74	103
4.5	2.22805	39.73	138.7	107.3	25.64	12.57	114
5.0	1.91660	42.34	151.1	114.6	24.15	12.50	124
5.5	1.69177	44.60	163.0	121.6	23.30	12.46	132
6.0	1.51923	46.60	174.5	128.4	22.76	12.45	139
6.5	1.38145	48.41	185.7	135.1	22.39	12.44	146
7.0	1.26829	50.06	196.9	141.7	22.13	12.44	152
7.5	1.17335	51.58	207.9	148.2	21.93	12.45	158
8.0	1.09237	52.99	218.8	154.7	21.77	12.45	164
8.5	1.02236	54.31	229.7	161.2	21.65	12.45	170
9.0	0.96114	55.54	240.5	167.6	21.55	12.45	175
9.5	0.90711	56.70	251.2	174.0	21.47	12.46	180
10.0	0.85904	57.80	261.9	180.4	21.40	12.46	185
11.0	0.77710	59.84	283.3	193.2	21.29	12.47	195
12.0	0.70978	61.68	304.5	205.9	21.21	12.47	204
13.0	0.65341	63.38	325.7	218.6	21.15	12.47	212
14.0	0.60549	64.94	346.8	231.2	21.10	12.47	220
15.0	0.56422	66.40	367.9	243.8	21.06	12.48	228
16.0	0.52829	67.76	388.9	256.4	21.02	12.48	236
17.0	0.49671	69.03	409.9	269.0	21.00	12.48	243
18.0	0.46874	70.23	430.9	281.6	20.97	12.48	250
19.0	0.44378	71.36	451.9	294.1	20.96	12.48	257
20.0	0.42136	72.44	472.8	306.7	20.94	12.48	264
22.0	0.38275	74.43	514.7	331.8	20.91	12.48	277
24.0	0.35066	76.25	556.5	356.9	20.89	12.48	289
26.0	0.32356	77.92	598.3	381.9	20.88	12.48	301
28.0	0.30037	79.47	640.0	406.9	20.86	12.48	312
30.0	0.28029	80.91	681.7	432.0	20.85	12.48	323
32.0	0.26274	82.25	723.4	457.0	20.84	12.48	334
34.0	0.24726	83.52	765.1	482.0	20.84	12.48	344
36.0	0.23351	84.71	806.8	507.0	20.83	12.48	354
38.0	0.22121	85.83	848.4	532.0	20.83	12.48	364
40.0	0.21015	86.90	890.1	556.9	20.82	12.48	373
45.0	0.18679	89.35	994.2	619.4	20.81	12.48	396
50.0	0.16812	91.55	1098.2	681.8	20.81	12.48	417
55.0	0.15285	93.53	1202.2	744.2	20.80	12.48	437
60.0	0.14012	95.34	1306.2	806.7	20.80	12.48	456
65.0	0.12935	97.01	1410.2	869.1	20.80	12.47	475
70.0	0.12012	98.55	1514.2	931.4	20.80	12.47	493
75.0	0.11211	99.98	1618.2	993.8	20.79	12.47	510
80.0	0.10511	101.32	1722.2	1056.2	20.79	12.47	527
85.0	0.09894	102.58	1826.1	1118.6	20.79	12.47	543
90.0	0.09344	103.77	1930.1	1181.0	20.79	12.47	559
95.0	0.08853	104.90	2034.1	1243.3	20.79	12.47	574
100.0	0.08411	105.96	2138.0	1305.7	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.07 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.07647	107.94	2345.9	1430.5	20.79	12.47	618
120.0	0.07010	109.75	2553.8	1555.2	20.79	12.47	645
130.0	0.06471	111.42	2761.7	1679.9	20.79	12.47	671
140.0	0.06009	112.96	2969.6	1804.7	20.79	12.47	697
150.0	0.05609	114.39	3177.4	1929.4	20.79	12.47	721
160.0	0.05259	115.73	3385.3	2054.1	20.79	12.47	745
170.0	0.04949	116.99	3593.2	2178.8	20.79	12.47	768
180.0	0.04675	118.18	3801.0	2303.6	20.79	12.47	790
190.0	0.04429	119.31	4008.9	2428.3	20.79	12.47	811
200.0	0.04207	120.37	4216.8	2553.0	20.79	12.47	832
210.0	0.04007	121.39	4424.6	2677.7	20.79	12.47	853
220.0	0.03825	122.35	4632.5	2802.4	20.79	12.47	873
230.0	0.03659	123.28	4840.3	2927.1	20.79	12.47	893
240.0	0.03507	124.16	5048.2	3051.9	20.79	12.47	912
250.0	0.03366	125.01	5256.1	3176.6	20.79	12.47	931
260.0	0.03237	125.83	5463.9	3301.3	20.79	12.47	949
270.0	0.03117	126.61	5671.8	3426.0	20.79	12.47	967
280.0	0.03006	127.37	5879.6	3550.7	20.79	12.47	985
290.0	0.02902	128.09	6087.5	3675.4	20.79	12.47	1002
300.0	0.02805	128.80	6295.4	3800.2	20.79	12.47	1019
310.0	0.02715	129.48	6503.2	3924.9	20.79	12.47	1036
320.0	0.02630	130.14	6711.1	4049.6	20.79	12.47	1053
330.0	0.02551	130.78	6918.9	4174.3	20.79	12.47	1069
340.0	0.02476	131.40	7126.8	4299.0	20.79	12.47	1085
350.0	0.02405	132.00	7334.6	4423.7	20.79	12.47	1101
360.0	0.02338	132.59	7542.5	4548.4	20.79	12.47	1117
370.0	0.02275	133.16	7750.4	4673.2	20.79	12.47	1132
380.0	0.02215	133.71	7958.2	4797.9	20.79	12.47	1147
390.0	0.02158	134.25	8166.1	4922.6	20.79	12.47	1162
400.0	0.02104	134.78	8373.9	5047.3	20.79	12.47	1177
420.0	0.02004	135.79	8789.6	5296.7	20.79	12.47	1206
440.0	0.01913	136.76	9205.3	5546.2	20.79	12.47	1234
460.0	0.01830	137.68	9621.1	5795.6	20.79	12.47	1262
480.0	0.01754	138.57	10036.8	6045.0	20.79	12.47	1289
500.0	0.01684	139.42	10452.5	6294.4	20.79	12.47	1316
550.0	0.01531	141.40	11491.8	6918.0	20.79	12.47	1380
600.0	0.01403	143.21	12531.0	7541.6	20.79	12.47	1441
650.0	0.01295	144.87	13570.3	8165.1	20.79	12.47	1500
700.0	0.01203	146.41	14609.6	8788.7	20.79	12.47	1557
750.0	0.01122	147.85	15648.9	9412.3	20.79	12.47	1611
800.0	0.01052	149.19	16688.2	10035.8	20.79	12.47	1664
850.0	0.00990	150.45	17727.4	10659.4	20.79	12.47	1715
900.0	0.00935	151.63	18766.7	11282.9	20.79	12.47	1765
950.0	0.00886	152.76	19806.0	11906.5	20.79	12.47	1814
1000.0	0.00842	153.82	20845.3	12530.1	20.79	12.47	1861
1100.0	0.00765	155.81	22923.8	13777.2	20.79	12.47	1951
1200.0	0.00702	157.61	25002.4	15024.3	20.79	12.47	2038
1300.0	0.00648	159.28	27080.9	16271.4	20.79	12.47	2121
1400.0	0.00601	160.82	29159.5	17518.6	20.79	12.47	2201
1500.0	0.00561	162.25	31238.1	18765.7	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.08 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.55607	7.85	17.8	15.6	8.50	7.82	218
3.0	35.64228	9.52	22.4	20.2	10.00	8.31	211
3.5	34.31913	11.22	27.9	25.6	12.20	8.87	196
* 3.982	32.42562	13.00	34.6	32.1	16.10	9.40	175
* 3.982	3.32054	34.71	121.2	97.1	32.48	12.79	100
4.0	3.28748	34.85	121.8	97.5	32.14	12.78	100
4.5	2.63412	38.28	136.3	105.9	26.94	12.59	112
5.0	2.24107	41.00	149.2	113.5	24.89	12.50	122
5.5	1.96603	43.31	161.4	120.7	23.80	12.46	131
6.0	1.75862	45.35	173.1	127.6	23.12	12.44	138
6.5	1.59484	47.19	184.5	134.4	22.67	12.44	145
7.0	1.46136	48.85	195.8	141.0	22.35	12.44	152
7.5	1.35001	50.39	206.9	147.6	22.11	12.44	158
8.0	1.25544	51.81	217.9	154.2	21.93	12.44	164
8.5	1.17393	53.13	228.8	160.7	21.78	12.45	169
9.0	1.10286	54.37	239.7	167.1	21.67	12.45	175
9.5	1.04026	55.54	250.5	173.6	21.57	12.46	180
10.0	0.98465	56.65	261.3	180.0	21.49	12.46	185
11.0	0.89008	58.69	282.7	192.8	21.36	12.46	194
12.0	0.81253	60.54	304.0	205.5	21.27	12.47	203
13.0	0.74771	62.24	325.2	218.2	21.20	12.47	212
14.0	0.69267	63.81	346.4	230.9	21.14	12.47	220
15.0	0.64530	65.27	367.5	243.5	21.10	12.48	228
16.0	0.60410	66.63	388.6	256.2	21.06	12.48	236
17.0	0.56791	67.91	409.6	268.8	21.03	12.48	243
18.0	0.53587	69.11	430.6	281.3	21.00	12.48	250
19.0	0.50728	70.24	451.6	293.9	20.98	12.48	257
20.0	0.48162	71.32	472.6	306.5	20.96	12.48	264
22.0	0.43744	73.31	514.5	331.6	20.93	12.48	277
24.0	0.40073	75.13	556.3	356.7	20.91	12.48	289
26.0	0.36974	76.81	598.1	381.7	20.89	12.48	301
28.0	0.34323	78.35	639.9	406.8	20.87	12.48	312
30.0	0.32027	79.79	681.6	431.8	20.86	12.48	323
32.0	0.30021	81.14	723.3	456.9	20.85	12.48	334
34.0	0.28252	82.40	765.0	481.9	20.85	12.48	344
36.0	0.26681	83.60	806.7	506.9	20.84	12.48	354
38.0	0.25276	84.72	848.4	531.9	20.83	12.48	364
40.0	0.24011	85.79	890.0	556.9	20.83	12.48	373
45.0	0.21343	88.24	994.2	619.3	20.82	12.48	396
50.0	0.19210	90.44	1098.2	681.8	20.81	12.48	417
55.0	0.17464	92.42	1202.3	744.2	20.81	12.48	437
60.0	0.16010	94.23	1306.3	806.6	20.80	12.48	457
65.0	0.14780	95.89	1410.3	869.0	20.80	12.48	475
70.0	0.13725	97.44	1514.3	931.4	20.80	12.47	493
75.0	0.12811	98.87	1618.3	993.8	20.80	12.47	510
80.0	0.12011	100.21	1722.3	1056.2	20.79	12.47	527
85.0	0.11305	101.47	1826.2	1118.6	20.79	12.47	543
90.0	0.10678	102.66	1930.2	1180.9	20.79	12.47	559
95.0	0.10116	103.79	2034.2	1243.3	20.79	12.47	574
100.0	0.09611	104.85	2138.1	1305.7	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.08 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.08738	106.83	2346.0	1430.4	20.79	12.47	618
120.0	0.08010	108.64	2553.9	1555.2	20.79	12.47	645
130.0	0.07395	110.31	2761.8	1679.9	20.79	12.47	671
140.0	0.06867	111.85	2969.7	1804.7	20.79	12.47	697
150.0	0.06410	113.28	3177.6	1929.4	20.79	12.47	721
160.0	0.06009	114.62	3385.4	2054.1	20.79	12.47	745
170.0	0.05656	115.88	3593.3	2178.8	20.79	12.47	768
180.0	0.05342	117.07	3801.2	2303.6	20.79	12.47	790
190.0	0.05061	118.20	4009.0	2428.3	20.79	12.47	811
200.0	0.04808	119.26	4216.9	2553.0	20.79	12.47	833
210.0	0.04579	120.28	4424.8	2677.7	20.79	12.47	853
220.0	0.04371	121.24	4632.6	2802.4	20.79	12.47	873
230.0	0.04181	122.17	4840.5	2927.2	20.79	12.47	893
240.0	0.04007	123.05	5048.3	3051.9	20.79	12.47	912
250.0	0.03847	123.90	5256.2	3176.6	20.79	12.47	931
260.0	0.03699	124.71	5464.1	3301.3	20.79	12.47	949
270.0	0.03562	125.50	5671.9	3426.0	20.79	12.47	967
280.0	0.03435	126.26	5879.8	3550.7	20.79	12.47	985
290.0	0.03317	126.98	6087.6	3675.5	20.79	12.47	1002
300.0	0.03206	127.69	6295.5	3800.2	20.79	12.47	1019
310.0	0.03103	128.37	6503.3	3924.9	20.79	12.47	1036
320.0	0.03006	129.03	6711.2	4049.6	20.79	12.47	1053
330.0	0.02915	129.67	6919.1	4174.3	20.79	12.47	1069
340.0	0.02829	130.29	7126.9	4299.0	20.79	12.47	1085
350.0	0.02748	130.89	7334.8	4423.8	20.79	12.47	1101
360.0	0.02672	131.48	7542.6	4548.5	20.79	12.47	1117
370.0	0.02600	132.05	7750.5	4673.2	20.79	12.47	1132
380.0	0.02531	132.60	7958.3	4797.9	20.79	12.47	1147
390.0	0.02466	133.14	8166.2	4922.6	20.79	12.47	1162
400.0	0.02405	133.67	8374.1	5047.3	20.79	12.47	1177
420.0	0.02290	134.68	8789.8	5296.8	20.79	12.47	1206
440.0	0.02186	135.65	9205.5	5546.2	20.79	12.47	1234
460.0	0.02091	136.57	9621.2	5795.6	20.79	12.47	1262
480.0	0.02004	137.46	10036.9	6045.0	20.79	12.47	1289
500.0	0.01924	138.31	10452.6	6294.5	20.79	12.47	1316
550.0	0.01749	140.29	11491.9	6918.0	20.79	12.47	1380
600.0	0.01603	142.10	12531.2	7541.6	20.79	12.47	1441
650.0	0.01480	143.76	13570.4	8165.2	20.79	12.47	1500
700.0	0.01374	145.30	14609.7	8788.7	20.79	12.47	1557
750.0	0.01283	146.74	15649.0	9412.3	20.79	12.47	1611
800.0	0.01203	148.08	16688.3	10035.8	20.79	12.47	1664
850.0	0.01132	149.34	17727.6	10659.4	20.79	12.47	1715
900.0	0.01069	150.52	18766.8	11283.0	20.79	12.47	1765
950.0	0.01013	151.65	19806.1	11906.5	20.79	12.47	1814
1000.0	0.00962	152.71	20845.4	12530.1	20.79	12.47	1861
1100.0	0.00875	154.70	22923.9	13777.2	20.79	12.47	1951
1200.0	0.00802	156.50	25002.5	15024.3	20.79	12.47	2038
1300.0	0.00740	158.17	27081.1	16271.5	20.79	12.47	2121
1400.0	0.00687	159.71	29159.6	17518.6	20.79	12.47	2202
1500.0	0.00641	161.14	31238.2	18765.7	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.09 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.61298	7.84	18.1	15.6	8.47	7.79	219
3.0	35.70950	9.51	22.6	20.1	9.96	8.29	212
3.5	34.40727	11.19	28.1	25.5	12.11	8.86	198
4.0	32.47501	13.03	35.0	32.2	16.05	9.40	177
* 4.101	31.95097	13.45	36.7	33.9	17.44	9.51	171
* 4.101	3.73645	34.04	121.4	97.3	34.41	12.76	100
4.5	3.07730	36.92	133.7	104.5	28.57	12.60	110
5.0	2.58354	39.77	147.2	112.4	25.75	12.50	121
5.5	2.25079	42.15	159.7	119.7	24.35	12.46	130
6.0	2.00478	44.23	171.7	126.8	23.51	12.44	138
6.5	1.81289	46.09	183.3	133.6	22.97	12.43	145
7.0	1.65779	47.78	194.7	140.4	22.59	12.43	151
7.5	1.52917	49.32	205.9	147.0	22.31	12.44	158
8.0	1.42039	50.76	217.0	153.6	22.09	12.44	164
8.5	1.32698	52.09	228.0	160.1	21.92	12.44	169
9.0	1.24573	53.34	238.9	166.6	21.79	12.45	175
9.5	1.17433	54.52	249.8	173.1	21.68	12.45	180
10.0	1.11102	55.62	260.6	179.6	21.58	12.46	185
11.0	1.00356	57.67	282.1	192.4	21.44	12.46	194
12.0	0.91564	59.54	303.5	205.2	21.33	12.47	203
13.0	0.84226	61.24	324.8	217.9	21.25	12.47	212
14.0	0.78002	62.81	346.0	230.6	21.19	12.47	220
15.0	0.72651	64.27	367.1	243.2	21.14	12.48	228
16.0	0.68000	65.63	388.2	255.9	21.09	12.48	236
17.0	0.63917	66.91	409.3	268.5	21.06	12.48	243
18.0	0.60303	68.11	430.4	281.1	21.03	12.48	250
19.0	0.57081	69.25	451.4	293.7	21.00	12.48	257
20.0	0.54190	70.33	472.4	306.3	20.98	12.48	264
22.0	0.49213	72.33	514.3	331.4	20.95	12.48	277
24.0	0.45080	74.15	556.2	356.5	20.92	12.48	289
26.0	0.41591	75.82	598.0	381.6	20.90	12.48	301
28.0	0.38607	77.37	639.8	406.7	20.89	12.48	312
30.0	0.36024	78.81	681.5	431.7	20.87	12.48	323
32.0	0.33767	80.16	723.3	456.7	20.86	12.48	334
34.0	0.31777	81.42	765.0	481.8	20.85	12.48	344
36.0	0.30009	82.61	806.7	506.8	20.85	12.48	354
38.0	0.28429	83.74	848.4	531.8	20.84	12.48	364
40.0	0.27006	84.81	890.0	556.8	20.83	12.48	373
45.0	0.24006	87.26	994.2	619.2	20.82	12.48	396
50.0	0.21606	89.46	1098.3	681.7	20.82	12.48	417
55.0	0.19643	91.44	1202.3	744.1	20.81	12.48	437
60.0	0.18008	93.25	1306.4	806.6	20.81	12.48	457
65.0	0.16624	94.91	1410.4	869.0	20.80	12.48	475
70.0	0.15438	96.46	1514.4	931.4	20.80	12.48	493
75.0	0.14410	97.89	1618.4	993.8	20.80	12.48	510
80.0	0.13510	99.23	1722.4	1056.2	20.80	12.47	527
85.0	0.12716	100.49	1826.3	1118.5	20.79	12.47	543
90.0	0.12010	101.68	1930.3	1180.9	20.79	12.47	559
95.0	0.11379	102.81	2034.3	1243.3	20.79	12.47	574
100.0	0.10811	103.87	2138.2	1305.7	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.09 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.09829	105.85	2346.1	1430.4	20.79	12.47	618
120.0	0.09011	107.66	2554.0	1555.2	20.79	12.47	645
130.0	0.08318	109.33	2761.9	1679.9	20.79	12.47	672
140.0	0.07725	110.87	2969.8	1804.6	20.79	12.47	697
150.0	0.07210	112.30	3177.7	1929.4	20.79	12.47	721
160.0	0.06760	113.64	3385.5	2054.1	20.79	12.47	745
170.0	0.06362	114.90	3593.4	2178.8	20.79	12.47	768
180.0	0.06009	116.09	3801.3	2303.6	20.79	12.47	790
190.0	0.05693	117.22	4009.2	2428.3	20.79	12.47	812
200.0	0.05409	118.28	4217.0	2553.0	20.79	12.47	833
210.0	0.05151	119.30	4424.9	2677.7	20.79	12.47	853
220.0	0.04917	120.26	4632.7	2802.4	20.79	12.47	873
230.0	0.04704	121.19	4840.6	2927.2	20.79	12.47	893
240.0	0.04508	122.07	5048.5	3051.9	20.79	12.47	912
250.0	0.04328	122.92	5256.3	3176.6	20.79	12.47	931
260.0	0.04161	123.74	5464.2	3301.3	20.79	12.47	949
270.0	0.04007	124.52	5672.0	3426.0	20.79	12.47	967
280.0	0.03864	125.28	5879.9	3550.8	20.79	12.47	985
290.0	0.03731	126.01	6087.8	3675.5	20.79	12.47	1002
300.0	0.03607	126.71	6295.6	3800.2	20.79	12.47	1019
310.0	0.03490	127.39	6503.5	3924.9	20.79	12.47	1036
320.0	0.03381	128.05	6711.3	4049.6	20.79	12.47	1053
330.0	0.03279	128.69	6919.2	4174.3	20.79	12.47	1069
340.0	0.03183	129.31	7127.1	4299.1	20.79	12.47	1085
350.0	0.03092	129.91	7334.9	4423.8	20.79	12.47	1101
360.0	0.03006	130.50	7542.8	4548.5	20.79	12.47	1117
370.0	0.02925	131.07	7750.6	4673.2	20.79	12.47	1132
380.0	0.02848	131.62	7958.5	4797.9	20.79	12.47	1147
390.0	0.02775	132.16	8166.3	4922.6	20.79	12.47	1162
400.0	0.02705	132.69	8374.2	5047.3	20.79	12.47	1177
420.0	0.02577	133.70	8789.9	5296.8	20.79	12.47	1206
440.0	0.02459	134.67	9205.6	5546.2	20.79	12.47	1234
460.0	0.02353	135.59	9621.3	5795.6	20.79	12.47	1262
480.0	0.02255	136.48	10037.0	6045.1	20.79	12.47	1289
500.0	0.02164	137.33	10452.7	6294.5	20.79	12.47	1316
550.0	0.01968	139.31	11492.0	6918.0	20.79	12.47	1380
600.0	0.01804	141.12	12531.3	7541.6	20.79	12.47	1441
650.0	0.01665	142.78	13570.6	8165.2	20.79	12.47	1500
700.0	0.01546	144.32	14609.8	8788.7	20.79	12.47	1557
750.0	0.01443	145.76	15649.1	9412.3	20.79	12.47	1611
800.0	0.01353	147.10	16688.4	10035.9	20.79	12.47	1664
850.0	0.01273	148.36	17727.7	10659.4	20.79	12.47	1716
900.0	0.01203	149.55	18767.0	11283.0	20.79	12.47	1765
950.0	0.01139	150.67	19806.2	11906.6	20.79	12.47	1814
1000.0	0.01082	151.74	20845.5	12530.1	20.79	12.47	1861
1100.0	0.00984	153.72	22924.1	13777.3	20.79	12.47	1951
1200.0	0.00902	155.53	25002.6	15024.4	20.79	12.47	2038
1300.0	0.00833	157.19	27081.2	16271.5	20.79	12.47	2121
1400.0	0.00773	158.73	29159.7	17518.6	20.79	12.47	2202
1500.0	0.00722	160.16	31238.3	18765.8	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.101325 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.67658	7.83	18.3	15.6	8.43	7.76	221
3.0	35.78438	9.49	22.9	20.1	9.91	8.27	214
3.5	34.50478	11.16	28.3	25.4	12.02	8.84	200
4.0	32.62658	12.98	35.2	32.1	15.75	9.37	179
* 4.224	31.40648	13.92	39.0	35.8	19.19	9.64	167
* 4.224	4.22450	33.33	121.3	97.3	36.98	12.73	100
4.5	3.63778	35.46	130.5	102.7	31.06	12.61	108
5.0	2.99678	38.48	144.8	111.0	26.89	12.50	119
5.5	2.58734	40.94	157.8	118.6	25.04	12.45	128
6.0	2.29238	43.07	170.0	125.8	23.99	12.43	137
6.5	2.06579	44.97	181.8	132.8	23.33	12.43	144
7.0	1.88447	46.68	193.4	139.6	22.87	12.43	151
7.5	1.73517	48.24	204.7	146.3	22.53	12.43	157
8.0	1.60956	49.69	215.9	153.0	22.28	12.44	163
8.5	1.50212	51.03	227.0	159.5	22.08	12.44	169
9.0	1.40897	52.29	238.0	166.1	21.93	12.45	174
9.5	1.32731	53.47	248.9	172.6	21.80	12.45	180
10.0	1.25505	54.59	259.8	179.1	21.69	12.46	185
11.0	1.13269	56.65	281.4	191.9	21.53	12.46	194
12.0	1.03282	58.52	302.9	204.8	21.40	12.47	203
13.0	0.94962	60.22	324.2	217.5	21.31	12.47	212
14.0	0.87914	61.80	345.5	230.2	21.24	12.47	220
15.0	0.81863	63.26	366.7	242.9	21.18	12.48	228
16.0	0.76606	64.63	387.9	255.6	21.13	12.48	236
17.0	0.71995	65.91	409.0	268.2	21.09	12.48	243
18.0	0.67915	67.11	430.0	280.9	21.06	12.48	250
19.0	0.64280	68.25	451.1	293.5	21.03	12.48	257
20.0	0.61018	69.33	472.1	306.1	21.01	12.48	264
22.0	0.55407	71.33	514.1	331.2	20.97	12.48	277
24.0	0.50749	73.15	556.0	356.3	20.94	12.48	289
26.0	0.46819	74.83	597.8	381.4	20.92	12.48	301
28.0	0.43458	76.30	639.7	406.5	20.90	12.48	313
30.0	0.40549	77.82	681.4	431.6	20.88	12.48	323
32.0	0.38008	79.17	723.2	456.6	20.87	12.48	334
34.0	0.35767	80.43	764.9	481.6	20.86	12.48	344
36.0	0.33777	81.62	806.6	506.6	20.85	12.48	354
38.0	0.31998	82.75	848.3	531.7	20.85	12.48	364
40.0	0.30397	83.82	890.0	556.7	20.84	12.48	373
45.0	0.27019	86.27	994.2	619.2	20.83	12.48	396
50.0	0.24319	88.47	1098.3	681.6	20.82	12.48	417
55.0	0.22110	90.45	1202.4	744.1	20.81	12.48	437
60.0	0.20269	92.26	1306.4	806.5	20.81	12.48	457
65.0	0.18711	93.93	1410.4	868.9	20.80	12.48	475
70.0	0.17376	95.47	1514.5	931.3	20.80	12.48	493
75.0	0.16219	96.90	1618.5	993.7	20.80	12.48	511
80.0	0.15207	98.25	1722.4	1056.1	20.80	12.48	527
85.0	0.14314	99.51	1826.4	1118.5	20.80	12.47	543
90.0	0.13519	100.70	1930.4	1180.9	20.79	12.47	559
95.0	0.12809	101.82	2034.4	1243.3	20.79	12.47	574
100.0	0.12169	102.89	2138.3	1305.7	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

.101325 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.11064	104.87	2346.2	1430.4	20.79	12.47	618
120.0	0.10143	106.68	2554.1	1555.2	20.79	12.47	645
130.0	0.09364	108.34	2762.0	1679.9	20.79	12.47	672
140.0	0.08696	109.88	2969.9	1804.6	20.79	12.47	697
150.0	0.08116	111.32	3177.8	1929.4	20.79	12.47	721
160.0	0.07610	112.66	3385.7	2054.1	20.79	12.47	745
170.0	0.07162	113.92	3593.6	2178.8	20.79	12.47	768
180.0	0.06765	115.11	3801.4	2303.6	20.79	12.47	790
190.0	0.06409	116.23	4009.3	2428.3	20.79	12.47	812
200.0	0.06089	117.30	4217.2	2553.0	20.79	12.47	833
210.0	0.05799	118.31	4425.0	2677.7	20.79	12.47	853
220.0	0.05536	119.28	4632.9	2802.5	20.79	12.47	873
230.0	0.05295	120.20	4840.8	2927.2	20.79	12.47	893
240.0	0.05075	121.09	5048.6	3051.9	20.79	12.47	912
250.0	0.04872	121.94	5256.5	3176.6	20.79	12.47	931
260.0	0.04685	122.75	5464.3	3301.3	20.79	12.47	949
270.0	0.04511	123.53	5672.2	3426.1	20.79	12.47	967
280.0	0.04350	124.29	5880.1	3550.8	20.79	12.47	985
290.0	0.04200	125.02	6087.9	3675.5	20.79	12.47	1002
300.0	0.04060	125.72	6295.8	3800.2	20.79	12.47	1020
310.0	0.03929	126.41	6503.6	3924.9	20.79	12.47	1036
320.0	0.03807	127.07	6711.5	4049.6	20.79	12.47	1053
330.0	0.03691	127.71	6919.3	4174.4	20.79	12.47	1069
340.0	0.03583	128.33	7127.2	4299.1	20.79	12.47	1085
350.0	0.03481	128.93	7335.1	4423.8	20.79	12.47	1101
360.0	0.03384	129.51	7542.9	4548.5	20.79	12.47	1117
370.0	0.03292	130.08	7750.8	4673.2	20.79	12.47	1132
380.0	0.03206	130.64	7958.6	4797.9	20.79	12.47	1147
390.0	0.03124	131.18	8166.5	4922.6	20.79	12.47	1162
400.0	0.03046	131.70	8374.3	5047.4	20.79	12.47	1177
420.0	0.02901	132.72	8790.1	5296.8	20.79	12.47	1206
440.0	0.02769	133.69	9205.8	5546.2	20.79	12.47	1234
460.0	0.02649	134.61	9621.5	5795.6	20.79	12.47	1262
480.0	0.02538	135.49	10037.2	6045.1	20.79	12.47	1289
500.0	0.02437	136.34	10452.9	6294.5	20.79	12.47	1316
550.0	0.02215	138.32	11492.2	6918.1	20.79	12.47	1380
600.0	0.02031	140.13	12531.4	7541.6	20.79	12.47	1441
650.0	0.01875	141.80	13570.7	8165.2	20.79	12.47	1500
700.0	0.01741	143.34	14610.0	8788.8	20.79	12.47	1557
750.0	0.01625	144.77	15649.3	9412.3	20.79	12.47	1611
800.0	0.01523	146.11	16688.5	10035.9	20.79	12.47	1664
850.0	0.01434	147.37	17727.8	10659.5	20.79	12.47	1716
900.0	0.01354	148.56	18767.1	11283.0	20.79	12.47	1765
950.0	0.01283	149.68	19806.4	11906.6	20.79	12.47	1814
1000.0	0.01219	150.75	20845.6	12530.2	20.79	12.47	1861
1100.0	0.01108	152.73	22924.2	13777.3	20.79	12.47	1951
1200.0	0.01015	154.54	25002.8	15024.4	20.79	12.47	2038
1300.0	0.00937	156.20	27081.3	16271.5	20.79	12.47	2121
1400.0	0.00870	157.74	29159.9	17518.7	20.79	12.47	2202
1500.0	0.00812	159.18	31238.4	18765.8	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.15 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.94046	7.78	19.5	15.5	8.29	7.65	227
3.0	36.09235	9.41	24.0	19.8	9.73	8.18	220
3.5	34.89895	11.05	29.3	25.0	11.66	8.76	208
4.0	33.21369	12.78	35.8	31.3	14.74	9.27	189
4.5	30.44502	14.89	44.8	39.9	23.09	9.86	161
* 4.669	28.82508	15.89	49.4	44.2	32.41	10.14	148
* 4.669	6.66277	30.50	117.8	95.3	57.37	12.56	100
5.0	5.25929	33.50	132.3	103.8	36.45	12.49	111
5.5	4.25710	36.58	148.4	113.2	29.39	12.43	123
6.0	3.65667	39.00	162.3	121.3	26.65	12.40	133
6.5	3.23505	41.07	175.3	128.9	25.17	12.40	141
7.0	2.91532	42.90	187.6	136.2	24.25	12.40	148
7.5	2.66127	44.55	199.6	143.2	23.62	12.41	155
8.0	2.45292	46.06	211.3	150.1	23.17	12.42	162
8.5	2.27802	47.46	222.8	156.9	22.83	12.42	168
9.0	2.12858	48.75	234.1	163.6	22.56	12.43	173
9.5	1.99906	49.97	245.3	170.3	22.35	12.44	179
10.0	1.88551	51.11	256.5	176.9	22.18	12.45	184
11.0	1.69525	53.21	278.5	190.0	21.91	12.46	194
12.0	1.54164	55.11	300.3	203.0	21.72	12.47	203
13.0	1.41465	56.84	321.9	215.9	21.57	12.47	212
14.0	1.30772	58.43	343.5	228.7	21.46	12.48	220
15.0	1.21631	59.91	364.9	241.5	21.37	12.48	228
16.0	1.13719	61.29	386.2	254.3	21.30	12.48	236
17.0	1.06799	62.58	407.5	267.0	21.24	12.48	244
18.0	1.00691	63.79	428.7	279.7	21.19	12.49	251
19.0	0.95257	64.93	449.9	292.4	21.15	12.49	258
20.0	0.90391	66.02	471.0	305.0	21.11	12.49	264
22.0	0.82032	68.03	513.2	330.3	21.06	12.49	277
24.0	0.75107	69.86	555.2	355.5	21.01	12.49	290
26.0	0.69273	71.54	597.2	380.7	20.98	12.49	302
28.0	0.64288	73.09	639.1	405.8	20.95	12.49	313
30.0	0.59977	74.54	681.0	430.9	20.93	12.49	324
32.0	0.56213	75.89	722.9	456.0	20.91	12.49	335
34.0	0.52896	77.15	764.7	481.1	20.90	12.48	345
36.0	0.49951	78.35	806.5	506.2	20.88	12.48	355
38.0	0.47318	79.48	848.2	531.2	20.87	12.48	364
40.0	0.44950	80.55	890.0	556.2	20.86	12.48	374
45.0	0.39955	83.00	994.2	618.8	20.85	12.48	396
50.0	0.35962	85.20	1098.4	681.3	20.83	12.48	418
55.0	0.32697	87.19	1202.6	743.8	20.83	12.48	438
60.0	0.29976	89.00	1306.7	806.3	20.82	12.48	457
65.0	0.27674	90.66	1410.8	868.7	20.81	12.48	476
70.0	0.25700	92.21	1514.8	931.1	20.81	12.48	494
75.0	0.23990	93.64	1618.8	993.6	20.81	12.48	511
80.0	0.22493	94.98	1722.9	1056.0	20.80	12.48	528
85.0	0.21173	96.24	1826.9	1118.4	20.80	12.48	544
90.0	0.19999	97.43	1930.9	1180.8	20.80	12.48	560
95.0	0.18948	98.56	2034.8	1243.2	20.80	12.48	575
100.0	0.18002	99.62	2138.8	1305.6	20.80	12.48	590

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.15 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.16369	101.61	2346.8	1430.4	20.79	12.48	618
120.0	0.15007	103.42	2554.7	1555.1	20.79	12.47	646
130.0	0.13854	105.08	2762.6	1679.9	20.79	12.47	672
140.0	0.12866	106.62	2970.5	1804.6	20.79	12.47	697
150.0	0.12010	108.05	3178.4	1929.4	20.79	12.47	722
160.0	0.11260	109.40	3386.3	2054.1	20.79	12.47	745
170.0	0.10599	110.66	3594.2	2178.8	20.79	12.47	768
180.0	0.10010	111.84	3802.0	2303.6	20.79	12.47	790
190.0	0.09484	112.97	4009.9	2428.3	20.79	12.47	812
200.0	0.09011	114.04	4217.8	2553.0	20.79	12.47	833
210.0	0.08582	115.05	4425.7	2677.8	20.79	12.47	853
220.0	0.08192	116.02	4633.5	2802.5	20.79	12.47	873
230.0	0.07836	116.94	4841.4	2927.2	20.79	12.47	893
240.0	0.07510	117.82	5049.3	3051.9	20.79	12.47	912
250.0	0.07210	118.67	5257.1	3176.7	20.79	12.47	931
260.0	0.06933	119.49	5465.0	3301.4	20.79	12.47	949
270.0	0.06677	120.27	5672.8	3426.1	20.79	12.47	967
280.0	0.06438	121.03	5880.7	3550.8	20.79	12.47	985
290.0	0.06216	121.76	6088.6	3675.5	20.79	12.47	1003
300.0	0.06009	122.46	6296.4	3800.3	20.79	12.47	1020
310.0	0.05816	123.14	6504.3	3925.0	20.79	12.47	1037
320.0	0.05634	123.80	6712.1	4049.7	20.79	12.47	1053
330.0	0.05464	124.44	6920.0	4174.4	20.79	12.47	1069
340.0	0.05303	125.06	7127.8	4299.1	20.79	12.47	1085
350.0	0.05152	125.67	7335.7	4423.9	20.79	12.47	1101
360.0	0.05009	126.25	7543.6	4548.6	20.79	12.47	1117
370.0	0.04873	126.82	7751.4	4673.3	20.79	12.47	1132
380.0	0.04745	127.38	7959.3	4798.0	20.79	12.47	1147
390.0	0.04623	127.92	8167.1	4922.7	20.79	12.47	1162
400.0	0.04508	128.44	8375.0	5047.4	20.79	12.47	1177
420.0	0.04293	129.46	8790.7	5296.9	20.79	12.47	1206
440.0	0.04098	130.42	9206.4	5546.3	20.79	12.47	1235
460.0	0.03920	131.35	9622.1	5795.7	20.79	12.47	1262
480.0	0.03757	132.23	10037.8	6045.2	20.79	12.47	1289
500.0	0.03607	133.08	10453.5	6294.6	20.79	12.47	1316
550.0	0.03279	135.06	11492.8	6918.2	20.79	12.47	1380
600.0	0.03006	136.87	12532.1	7541.7	20.79	12.47	1442
650.0	0.02775	138.53	13571.3	8165.3	20.79	12.47	1500
700.0	0.02577	140.07	14610.6	8788.9	20.79	12.47	1557
750.0	0.02405	141.51	15649.9	9412.5	20.79	12.47	1612
800.0	0.02255	142.85	16689.2	10036.0	20.79	12.47	1664
850.0	0.02122	144.11	17728.4	10659.6	20.79	12.47	1716
900.0	0.02004	145.30	18767.7	11283.2	20.79	12.47	1765
950.0	0.01899	146.42	19807.0	11906.7	20.79	12.47	1814
1000.0	0.01804	147.49	20846.2	12530.3	20.79	12.47	1861
1100.0	0.01640	149.47	22924.8	13777.4	20.79	12.47	1952
1200.0	0.01503	151.28	25003.3	15024.6	20.79	12.47	2038
1300.0	0.01388	152.94	27081.9	16271.7	20.79	12.47	2122
1400.0	0.01289	154.48	29160.4	17518.8	20.79	12.47	2202
1500.0	0.01203	155.92	31239.0	18766.0	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.2 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	37.19702	7.73	20.8	15.4	8.16	7.54	233
3.0	36.38802	9.33	25.2	19.7	9.56	8.10	227
3.5	35.26828	10.94	30.4	24.7	11.36	8.68	215
4.0	33.73402	12.61	36.7	30.7	14.00	9.19	198
4.5	31.40924	14.53	44.8	38.5	19.74	9.72	174
5.0	25.84829	17.84	60.7	52.9	69.69	10.62	133
* 5.030	24.89194	18.33	63.1	55.1	97.78	10.75	129
* 5.030	10.62244	27.06	107.1	88.3	173.83	12.28	101
5.5	6.61888	32.60	136.0	105.8	39.42	12.36	117
6.0	5.35807	35.59	153.2	115.9	31.04	12.35	128
6.5	4.60995	37.94	167.8	124.4	27.80	12.36	138
7.0	4.08666	39.93	181.2	132.3	26.06	12.37	146
7.5	3.69037	41.69	194.0	139.8	24.97	12.38	153
8.0	3.37553	43.27	206.3	147.0	24.23	12.39	160
8.5	3.11715	44.72	218.2	154.1	23.69	12.41	166
9.0	2.90005	46.07	230.0	161.0	23.28	12.42	172
9.5	2.71433	47.32	241.5	167.9	22.96	12.43	178
10.0	2.55315	48.49	253.0	174.6	22.71	12.44	183
11.0	2.28619	50.63	275.5	188.0	22.32	12.45	194
12.0	2.07311	52.56	297.6	201.2	22.05	12.46	203
13.0	1.89842	54.32	319.6	214.2	21.85	12.47	212
14.0	1.75221	55.93	341.4	227.2	21.70	12.48	221
15.0	1.62782	57.42	363.0	240.1	21.57	12.48	229
16.0	1.52054	58.81	384.5	253.0	21.48	12.49	236
17.0	1.42697	60.11	405.9	265.8	21.40	12.49	244
18.0	1.34458	61.33	427.3	278.6	21.33	12.49	251
19.0	1.27143	62.49	448.6	291.3	21.27	12.49	258
20.0	1.20602	63.58	469.8	304.0	21.22	12.49	265
22.0	1.09388	65.59	512.2	329.4	21.15	12.49	278
24.0	1.00115	67.43	554.4	354.7	21.09	12.49	290
26.0	0.92313	69.12	596.6	379.9	21.04	12.49	302
28.0	0.85653	70.68	638.6	405.1	21.01	12.49	314
30.0	0.79900	72.12	680.6	430.3	20.98	12.49	325
32.0	0.74878	73.48	722.5	455.4	20.95	12.49	335
34.0	0.70455	74.75	764.4	480.5	20.93	12.49	345
36.0	0.66529	75.94	806.3	505.6	20.92	12.49	355
38.0	0.63021	77.07	848.1	530.7	20.90	12.49	365
40.0	0.59866	78.14	889.9	555.8	20.89	12.49	374
45.0	0.53213	80.60	994.3	618.4	20.87	12.49	397
50.0	0.47897	82.80	1098.6	681.0	20.85	12.48	418
55.0	0.43549	84.79	1202.8	743.5	20.84	12.48	439
60.0	0.39927	86.60	1306.9	806.0	20.83	12.48	458
65.0	0.36862	88.27	1411.1	868.5	20.82	12.48	476
70.0	0.34235	89.81	1515.2	931.0	20.82	12.48	494
75.0	0.31958	91.25	1619.2	993.4	20.81	12.48	512
80.0	0.29966	92.59	1723.3	1055.8	20.81	12.48	528
85.0	0.28207	93.85	1827.3	1118.3	20.81	12.48	544
90.0	0.26644	95.04	1931.3	1180.7	20.80	12.48	560
95.0	0.25245	96.16	2035.3	1243.1	20.80	12.48	575
100.0	0.23986	97.23	2139.3	1305.5	20.80	12.48	590

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.2 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.21810	99.21	2347.3	1430.3	20.80	12.48	619
120.0	0.19997	101.02	2555.3	1555.1	20.79	12.48	646
130.0	0.18462	102.69	2763.2	1679.8	20.79	12.48	672
140.0	0.17146	104.23	2971.1	1804.6	20.79	12.48	698
150.0	0.16005	105.66	3179.0	1929.4	20.79	12.48	722
160.0	0.15006	107.00	3386.9	2054.1	20.79	12.47	746
170.0	0.14125	108.26	3594.8	2178.8	20.79	12.47	768
180.0	0.13342	109.45	3802.7	2303.6	20.79	12.47	791
190.0	0.12641	110.58	4010.6	2428.3	20.79	12.47	812
200.0	0.12010	111.64	4218.4	2553.1	20.79	12.47	833
210.0	0.11439	112.66	4426.3	2677.8	20.79	12.47	854
220.0	0.10919	113.62	4634.2	2802.5	20.79	12.47	874
230.0	0.10445	114.55	4842.0	2927.3	20.79	12.47	893
240.0	0.10011	115.43	5049.9	3052.0	20.79	12.47	913
250.0	0.09611	116.28	5257.8	3176.7	20.79	12.47	931
260.0	0.09242	117.10	5465.6	3301.4	20.79	12.47	950
270.0	0.08900	117.88	5673.5	3426.2	20.79	12.47	968
280.0	0.08582	118.64	5881.4	3550.9	20.79	12.47	985
290.0	0.08287	119.37	6089.2	3675.6	20.79	12.47	1003
300.0	0.08011	120.07	6297.1	3800.3	20.79	12.47	1020
310.0	0.07752	120.75	6504.9	3925.1	20.79	12.47	1037
320.0	0.07510	121.41	6712.8	4049.8	20.79	12.47	1053
330.0	0.07283	122.05	6920.7	4174.5	20.79	12.47	1070
340.0	0.07069	122.67	7128.5	4299.2	20.79	12.47	1086
350.0	0.06867	123.28	7336.4	4423.9	20.79	12.47	1102
360.0	0.06677	123.86	7544.2	4548.7	20.79	12.47	1117
370.0	0.06496	124.43	7752.1	4673.4	20.79	12.47	1132
380.0	0.06326	124.99	7959.9	4798.1	20.79	12.47	1148
390.0	0.06164	125.53	8167.8	4922.8	20.79	12.47	1163
400.0	0.06010	126.05	8375.6	5047.5	20.79	12.47	1177
420.0	0.05724	127.07	8791.4	5297.0	20.79	12.47	1206
440.0	0.05464	128.03	9207.1	5546.4	20.79	12.47	1235
460.0	0.05226	128.96	9622.8	5795.8	20.79	12.47	1263
480.0	0.05009	129.84	10038.5	6045.3	20.79	12.47	1290
500.0	0.04808	130.69	10454.2	6294.7	20.79	12.47	1316
550.0	0.04372	132.67	11493.5	6918.3	20.79	12.47	1380
600.0	0.04007	134.48	12532.7	7541.9	20.79	12.47	1442
650.0	0.03699	136.14	13572.0	8165.4	20.79	12.47	1501
700.0	0.03435	137.68	14611.3	8789.0	20.79	12.47	1557
750.0	0.03206	139.12	15650.5	9412.6	20.79	12.47	1612
800.0	0.03006	140.46	16689.8	10036.2	20.79	12.47	1665
850.0	0.02829	141.72	17729.1	10659.7	20.79	12.47	1716
900.0	0.02672	142.91	18768.3	11283.3	20.79	12.47	1765
950.0	0.02531	144.03	19807.6	11906.9	20.79	12.47	1814
1000.0	0.02405	145.10	20846.9	12530.4	20.79	12.47	1861
1100.0	0.02186	147.08	22925.4	13777.6	20.79	12.47	1952
1200.0	0.02004	148.89	25003.9	15024.7	20.79	12.47	2038
1300.0	0.01850	150.55	27082.5	16271.9	20.79	12.47	2122
1400.0	0.01718	152.09	29161.0	17519.0	20.79	12.47	2202
1500.0	0.01603	153.52	31239.6	18766.1	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.25 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	37.44069	7.68	22.0	15.3	8.03	7.44	238
3.0	36.66580	9.26	26.3	19.5	9.41	8.03	233
3.5	35.60835	10.84	31.4	24.4	11.10	8.62	222
4.0	34.19360	12.46	37.5	30.2	13.43	9.11	206
4.5	32.16152	14.26	45.2	37.4	17.83	9.61	185
5.0	28.48616	16.72	56.9	48.2	33.69	10.26	154
5.5	10.87469	27.92	116.3	93.3	80.25	12.16	112
6.0	7.56206	32.44	142.1	109.1	38.99	12.27	124
6.5	6.22659	35.21	159.5	119.3	31.59	12.30	135
7.0	5.39995	37.43	174.4	128.1	28.39	12.32	144
7.5	4.81199	39.32	188.1	136.1	26.60	12.35	151
8.0	4.36249	41.00	201.1	143.8	25.45	12.37	159
8.5	4.00306	42.51	213.6	151.1	24.65	12.38	165
9.0	3.70664	43.90	225.8	158.3	24.07	12.40	171
9.5	3.45660	45.19	237.7	165.4	23.62	12.41	177
10.0	3.24196	46.40	249.4	172.3	23.27	12.43	183
11.0	2.89068	48.59	272.4	185.9	22.76	12.45	193
12.0	2.61362	50.55	295.0	199.3	22.40	12.46	203
13.0	2.38836	52.33	317.2	212.5	22.13	12.47	212
14.0	2.20100	53.97	339.2	225.7	21.93	12.48	221
15.0	2.04232	55.47	361.1	238.7	21.78	12.48	229
16.0	1.90598	56.88	382.8	251.6	21.65	12.49	237
17.0	1.78741	58.18	404.4	264.5	21.55	12.49	244
18.0	1.68324	59.41	425.9	277.4	21.47	12.49	252
19.0	1.59094	60.57	447.3	290.2	21.39	12.50	259
20.0	1.50852	61.67	468.7	303.0	21.33	12.50	265
22.0	1.36748	63.70	511.3	328.5	21.24	12.50	279
24.0	1.25108	65.54	553.7	353.8	21.16	12.50	291
26.0	1.15327	67.23	595.9	379.2	21.11	12.50	303
28.0	1.06987	68.80	638.1	404.4	21.06	12.50	314
30.0	0.99788	70.25	680.2	429.6	21.02	12.50	325
32.0	0.93507	71.60	722.2	454.8	20.99	12.49	336
34.0	0.87978	72.88	764.2	480.0	20.97	12.49	346
36.0	0.83073	74.07	806.1	505.1	20.95	12.49	356
38.0	0.78690	75.21	848.0	530.3	20.93	12.49	366
40.0	0.74749	76.28	889.8	555.4	20.92	12.49	375
45.0	0.66442	78.74	994.3	618.0	20.89	12.49	398
50.0	0.59805	80.94	1098.7	680.7	20.87	12.49	419
55.0	0.54378	82.93	1203.0	743.2	20.85	12.49	439
60.0	0.49858	84.74	1307.2	805.8	20.84	12.48	458
65.0	0.46033	86.41	1411.4	868.3	20.83	12.48	477
70.0	0.42754	87.95	1515.5	930.8	20.82	12.48	495
75.0	0.39912	89.39	1619.6	993.2	20.82	12.48	512
80.0	0.37425	90.73	1723.7	1055.7	20.81	12.48	529
85.0	0.35231	91.99	1827.8	1118.1	20.81	12.48	545
90.0	0.33279	93.18	1931.8	1180.6	20.81	12.48	560
95.0	0.31533	94.31	2035.8	1243.0	20.80	12.48	576
100.0	0.29961	95.38	2139.8	1305.4	20.80	12.48	591

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.25 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.27245	97.36	2347.8	1430.2	20.80	12.48	619
120.0	0.24981	99.17	2555.8	1555.0	20.80	12.48	646
130.0	0.23064	100.83	2763.8	1679.8	20.79	12.48	673
140.0	0.21421	102.37	2971.7	1804.6	20.79	12.48	698
150.0	0.19996	103.81	3179.6	1929.3	20.79	12.48	722
160.0	0.18749	105.15	3387.5	2054.1	20.79	12.48	746
170.0	0.17649	106.41	3595.4	2178.9	20.79	12.48	769
180.0	0.16670	107.60	3803.3	2303.6	20.79	12.48	791
190.0	0.15795	108.72	4011.2	2428.3	20.79	12.48	812
200.0	0.15007	109.79	4219.1	2553.1	20.79	12.47	834
210.0	0.14293	110.80	4426.9	2677.8	20.79	12.47	854
220.0	0.13645	111.77	4634.8	2802.6	20.79	12.47	874
230.0	0.13052	112.69	4842.7	2927.3	20.79	12.47	894
240.0	0.12510	113.58	5050.6	3052.0	20.79	12.47	913
250.0	0.12010	114.43	5258.4	3176.8	20.79	12.47	932
260.0	0.11549	115.24	5466.3	3301.5	20.79	12.47	950
270.0	0.11122	116.03	5674.2	3426.2	20.79	12.47	968
280.0	0.10725	116.78	5882.0	3550.9	20.79	12.47	986
290.0	0.10356	117.51	6089.9	3675.7	20.79	12.47	1003
300.0	0.10011	118.22	6297.7	3800.4	20.79	12.47	1020
310.0	0.09688	118.90	6505.6	3925.1	20.79	12.47	1037
320.0	0.09386	119.56	6713.5	4049.8	20.79	12.47	1054
330.0	0.09102	120.20	6921.3	4174.6	20.79	12.47	1070
340.0	0.08835	120.82	7129.2	4299.3	20.79	12.47	1086
350.0	0.08582	121.42	7337.0	4424.0	20.79	12.47	1102
360.0	0.08344	122.01	7544.9	4548.7	20.79	12.47	1117
370.0	0.08119	122.58	7752.7	4673.5	20.79	12.47	1133
380.0	0.07906	123.13	7960.6	4798.2	20.79	12.47	1148
390.0	0.07703	123.67	8168.4	4922.9	20.79	12.47	1163
400.0	0.07511	124.20	8376.3	5047.6	20.79	12.47	1178
420.0	0.07153	125.21	8792.0	5297.1	20.79	12.47	1207
440.0	0.06828	126.18	9207.7	5546.5	20.79	12.47	1235
460.0	0.06532	127.10	9623.4	5795.9	20.79	12.47	1263
480.0	0.06260	127.99	10039.1	6045.4	20.79	12.47	1290
500.0	0.06010	128.83	10454.8	6294.8	20.79	12.47	1316
550.0	0.05464	130.82	11494.1	6918.4	20.79	12.47	1381
600.0	0.05009	132.62	12533.4	7542.0	20.79	12.47	1442
650.0	0.04624	134.29	13572.6	8165.6	20.79	12.47	1501
700.0	0.04294	135.83	14611.9	8789.1	20.79	12.47	1557
750.0	0.04008	137.26	15651.2	9412.7	20.79	12.47	1612
800.0	0.03757	138.60	16690.4	10036.3	20.79	12.47	1665
850.0	0.03536	139.86	17729.7	10659.9	20.79	12.47	1716
900.0	0.03340	141.05	18768.9	11283.4	20.79	12.47	1766
950.0	0.03164	142.18	19808.2	11907.0	20.79	12.47	1814
1000.0	0.03006	143.24	20847.5	12530.6	20.79	12.47	1861
1100.0	0.02733	145.22	22926.0	13777.7	20.79	12.47	1952
1200.0	0.02505	147.03	25004.5	15024.9	20.79	12.47	2038
1300.0	0.02313	148.69	27083.1	16272.0	20.79	12.47	2122
1400.0	0.02147	150.24	29161.6	17519.2	20.79	12.47	2202
1500.0	0.02004	151.67	31240.1	18766.3	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.3 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	37.67297	7.64	23.2	15.2	7.91	7.34	244
3.0	36.92811	9.20	27.5	19.4	9.27	7.96	239
3.5	35.92418	10.74	32.5	24.2	10.88	8.56	228
4.0	34.60695	12.32	38.4	29.8	12.97	9.05	213
4.5	32.78658	14.04	45.7	36.6	16.55	9.52	194
5.0	29.86738	16.16	55.9	45.8	25.92	10.08	168
5.5	21.40144	20.99	81.5	67.5	120.11	11.22	128
6.0	10.66381	29.17	128.1	100.0	54.42	12.12	122
6.5	8.17783	32.68	150.0	113.3	37.10	12.23	133
7.0	6.88855	35.19	166.9	123.4	31.38	12.27	142
7.5	6.04075	37.25	181.9	132.2	28.54	12.31	150
8.0	5.42094	39.04	195.7	140.3	26.85	12.34	157
8.5	4.93948	40.63	208.8	148.1	25.72	12.36	164
9.0	4.55038	42.07	221.5	155.5	24.92	12.38	171
9.5	4.22699	43.41	233.8	162.8	24.33	12.40	177
10.0	3.95253	44.64	245.8	169.9	23.87	12.41	182
11.0	3.50887	46.88	269.3	183.8	23.20	12.44	193
12.0	3.16314	48.88	292.3	197.4	22.75	12.46	203
13.0	2.88442	50.69	314.9	210.8	22.42	12.47	212
14.0	2.65400	52.34	337.1	224.1	22.17	12.48	221
15.0	2.45977	53.86	359.2	237.3	21.98	12.49	229
16.0	2.29347	55.28	381.1	250.3	21.83	12.49	237
17.0	2.14926	56.60	402.9	263.3	21.70	12.50	245
18.0	2.02286	57.83	424.5	276.2	21.60	12.50	252
19.0	1.91105	59.00	446.1	289.1	21.52	12.50	259
20.0	1.81138	60.10	467.6	301.9	21.44	12.50	266
22.0	1.64112	62.14	510.3	327.5	21.33	12.50	279
24.0	1.50086	63.99	552.9	353.0	21.24	12.50	291
26.0	1.38315	65.69	595.3	378.4	21.17	12.50	303
28.0	1.28289	67.25	637.6	403.7	21.12	12.50	315
30.0	1.19641	68.71	679.8	429.0	21.07	12.50	326
32.0	1.12100	70.07	721.9	454.2	21.04	12.50	336
34.0	1.05466	71.34	763.9	479.5	21.01	12.50	347
36.0	0.99581	72.54	805.9	504.6	20.98	12.50	357
38.0	0.94324	73.68	847.8	529.8	20.96	12.50	366
40.0	0.89600	74.75	889.7	554.9	20.94	12.49	376
45.0	0.79642	77.22	994.4	617.7	20.91	12.49	398
50.0	0.71688	79.42	1098.8	680.3	20.88	12.49	419
55.0	0.65185	81.41	1203.2	743.0	20.86	12.49	440
60.0	0.59768	83.22	1307.5	805.5	20.85	12.49	459
65.0	0.55186	84.89	1411.7	868.1	20.84	12.49	477
70.0	0.51257	86.43	1515.9	930.6	20.83	12.48	495
75.0	0.47852	87.87	1620.0	993.1	20.82	12.48	512
80.0	0.44872	89.21	1724.1	1055.5	20.82	12.48	529
85.0	0.42242	90.48	1828.2	1118.0	20.81	12.48	545
90.0	0.39904	91.67	1932.3	1180.4	20.81	12.48	561
95.0	0.37812	92.79	2036.3	1242.9	20.81	12.48	576
100.0	0.35928	93.86	2140.3	1305.3	20.81	12.48	591

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.3 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.32673	95.84	2348.4	1430.2	20.80	12.48	620
120.0	0.29959	97.65	2556.4	1555.0	20.80	12.48	647
130.0	0.27662	99.32	2764.3	1679.8	20.80	12.48	673
140.0	0.25692	100.86	2972.3	1804.6	20.79	12.48	698\
150.0	0.23984	102.29	3180.2	1929.3	20.79	12.48	723
160.0	0.22489	103.63	3388.1	2054.1	20.79	12.48	746
170.0	0.21169	104.89	3596.0	2178.9	20.79	12.48	769
180.0	0.19996	106.08	3803.9	2303.6	20.79	12.48	791
190.0	0.18946	107.21	4011.8	2428.4	20.79	12.48	813
200.0	0.18001	108.27	4219.7	2553.1	20.79	12.48	834
210.0	0.17146	109.29	4427.6	2677.9	20.79	12.48	854
220.0	0.16368	110.25	4635.5	2802.6	20.79	12.48	874
230.0	0.15658	111.18	4843.3	2927.3	20.79	12.48	894
240.0	0.15007	112.06	5051.2	3052.1	20.79	12.47	913
250.0	0.14408	112.91	5259.1	3176.8	20.79	12.47	932
260.0	0.13855	113.73	5466.9	3301.5	20.79	12.47	950
270.0	0.13342	114.51	5674.8	3426.3	20.79	12.47	968
280.0	0.12867	115.27	5882.7	3551.0	20.79	12.47	986
290.0	0.12424	116.00	6090.5	3675.7	20.79	12.47	1003
300.0	0.12010	116.70	6298.4	3800.5	20.79	12.47	1020
310.0	0.11623	117.38	6506.3	3925.2	20.79	12.47	1037
320.0	0.11261	118.04	6714.1	4049.9	20.79	12.47	1054
330.0	0.10920	118.68	6922.0	4174.6	20.79	12.47	1070
340.0	0.10599	119.30	7129.8	4299.4	20.79	12.47	1086
350.0	0.10297	119.91	7337.7	4424.1	20.79	12.47	1102
360.0	0.10011	120.49	7545.5	4548.8	20.79	12.47	1118
370.0	0.09741	121.06	7753.4	4673.5	20.79	12.47	1133
380.0	0.09485	121.61	7961.3	4798.3	20.79	12.47	1148
390.0	0.09242	122.15	8169.1	4923.0	20.79	12.47	1163
400.0	0.09011	122.68	8377.0	5047.7	20.79	12.47	1178
420.0	0.08583	123.69	8792.7	5297.1	20.79	12.47	1207
440.0	0.08193	124.66	9208.4	5546.6	20.79	12.47	1235
460.0	0.07837	125.59	9624.1	5796.0	20.79	12.47	1263
480.0	0.07511	126.47	10039.8	6045.5	20.79	12.47	1290
500.0	0.07211	127.32	10455.5	6294.9	20.79	12.47	1317
550.0	0.06556	129.30	11494.8	6918.5	20.79	12.47	1381
600.0	0.06010	131.11	12534.0	7542.1	20.79	12.47	1442
650.0	0.05548	132.77	13573.3	8165.7	20.79	12.47	1501
700.0	0.05152	134.31	14612.5	8789.3	20.79	12.47	1557
750.0	0.04809	135.75	15651.8	9412.8	20.79	12.47	1612
800.0	0.04508	137.09	16691.0	10036.4	20.79	12.47	1665
850.0	0.04243	138.35	17730.3	10660.0	20.79	12.47	1716
900.0	0.04008	139.54	18769.6	11283.6	20.79	12.47	1766
950.0	0.03797	140.66	19808.8	11907.2	20.79	12.47	1814
1000.0	0.03607	141.73	20848.1	12530.7	20.79	12.47	1861
1100.0	0.03279	143.71	22926.6	13777.9	20.79	12.47	1952
1200.0	0.03006	145.52	25005.1	15025.0	20.79	12.47	2039
1300.0	0.02775	147.18	27083.7	16272.2	20.79	12.47	2122
1400.0	0.02577	148.72	29162.2	17519.3	20.79	12.47	2202
1500.0	0.02405	150.15	31240.7	18766.5	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.4 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	38.10809	7.56	25.6	15.1	7.70	7.16	254
3.0	37.41372	9.08	29.8	19.1	9.04	7.83	250
3.5	36.49734	10.58	34.7	23.7	10.52	8.45	240
4.0	35.33086	12.09	40.4	29.1	12.29	8.94	227
4.5	33.80180	13.68	47.1	35.3	14.93	9.39	210
5.0	31.63145	15.48	55.7	43.0	20.02	9.86	189
5.5	27.94372	17.94	68.6	54.3	34.95	10.47	163
6.0	19.87701	22.78	96.7	76.5	73.93	11.42	137
6.5	13.39109	27.88	128.4	98.5	51.85	11.95	135
7.0	10.50117	31.19	150.7	112.6	39.13	12.12	141
7.5	8.86384	33.67	168.6	123.5	33.30	12.21	149
8.0	7.77194	35.70	184.4	132.9	30.11	12.26	156
8.5	6.97294	37.47	198.9	141.6	28.14	12.31	163
9.0	6.35342	39.03	212.6	149.7	26.81	12.34	170
9.5	5.85387	40.46	225.8	157.5	25.85	12.37	176
10.0	5.43950	41.76	238.5	165.0	25.14	12.39	182
11.0	4.78592	44.11	263.1	179.6	24.13	12.42	193
12.0	4.28862	46.18	286.9	193.6	23.47	12.45	203
13.0	3.89428	48.04	310.1	207.4	23.01	12.47	212
14.0	3.57216	49.73	333.0	221.0	22.66	12.48	221
15.0	3.30306	51.28	355.5	234.4	22.39	12.49	230
16.0	3.07426	52.72	377.8	247.7	22.18	12.50	238
17.0	2.87693	54.06	399.9	260.8	22.01	12.50	245
18.0	2.70474	55.32	421.8	273.9	21.87	12.51	253
19.0	2.55297	56.49	443.6	286.9	21.76	12.51	260
20.0	2.41807	57.61	465.3	299.9	21.66	12.51	267
22.0	2.18843	59.66	508.5	325.7	21.50	12.51	280
24.0	1.99991	61.53	551.4	351.3	21.39	12.51	293
26.0	1.84213	63.24	594.0	376.9	21.29	12.51	305
28.0	1.70798	64.81	636.5	402.3	21.22	12.51	316
30.0	1.59244	66.28	678.9	427.7	21.16	12.51	327
32.0	1.49181	67.64	721.2	453.1	21.12	12.51	338
34.0	1.40334	68.92	763.4	478.4	21.08	12.51	348
36.0	1.32493	70.12	805.5	503.6	21.05	12.50	358
38.0	1.25493	71.26	847.6	528.8	21.02	12.50	367
40.0	1.19204	72.34	889.6	554.0	20.99	12.50	377
45.0	1.05955	74.81	994.4	616.9	20.95	12.50	399
50.0	0.95377	77.01	1099.1	679.7	20.91	12.50	421
55.0	0.86732	79.00	1203.6	742.4	20.89	12.49	441
60.0	0.79531	80.82	1308.0	805.0	20.87	12.49	460
65.0	0.73439	82.49	1412.3	867.6	20.86	12.49	479
70.0	0.68217	84.04	1516.6	930.2	20.85	12.49	496
75.0	0.63690	85.47	1620.8	992.7	20.84	12.49	513
80.0	0.59729	86.82	1725.0	1055.3	20.83	12.49	530
85.0	0.56232	88.08	1829.1	1117.7	20.82	12.49	546
90.0	0.53124	89.27	1933.2	1180.2	20.82	12.48	562
95.0	0.50341	90.40	2037.3	1242.7	20.82	12.48	577
100.0	0.47836	91.47	2141.4	1305.1	20.81	12.48	592

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.4 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.43507	93.45	2349.4	1430.0	20.81	12.48	620
120.0	0.39897	95.26	2557.5	1554.9	20.80	12.48	648
130.0	0.36841	96.92	2765.5	1679.7	20.80	12.48	674
140.0	0.34220	98.46	2973.5	1804.5	20.80	12.48	699
150.0	0.31947	99.90	3181.4	1929.3	20.79	12.48	723
160.0	0.29958	101.24	3389.4	2054.1	20.79	12.48	747
170.0	0.28201	102.50	3597.3	2178.9	20.79	12.48	770
180.0	0.26640	103.69	3805.2	2303.6	20.79	12.48	792
190.0	0.25242	104.81	4013.1	2428.4	20.79	12.48	813
200.0	0.23984	105.88	4221.0	2553.2	20.79	12.48	834
210.0	0.22845	106.90	4428.9	2677.9	20.79	12.48	855
220.0	0.21810	107.86	4636.8	2802.7	20.79	12.48	875
230.0	0.20864	108.79	4844.6	2927.4	20.79	12.48	894
240.0	0.19997	109.67	5052.5	3052.2	20.79	12.48	914
250.0	0.19199	110.52	5260.4	3176.9	20.79	12.48	932
260.0	0.18462	111.33	5468.3	3301.6	20.79	12.48	951
270.0	0.17780	112.12	5676.1	3426.4	20.79	12.48	969
280.0	0.17147	112.88	5884.0	3551.1	20.79	12.48	986
290.0	0.16557	113.60	6091.9	3675.9	20.79	12.48	1004
300.0	0.16006	114.31	6299.7	3800.6	20.79	12.48	1021
310.0	0.15491	114.99	6507.6	3925.3	20.79	12.48	1038
320.0	0.15008	115.65	6715.4	4050.1	20.79	12.48	1054
330.0	0.14554	116.29	6923.3	4174.8	20.79	12.47	1070
340.0	0.14126	116.91	7131.2	4299.5	20.79	12.47	1087
350.0	0.13724	117.51	7339.0	4424.2	20.79	12.47	1102
360.0	0.13343	118.10	7546.9	4549.0	20.79	12.47	1118
370.0	0.12983	118.67	7754.7	4673.7	20.79	12.47	1133
380.0	0.12642	119.22	7962.6	4798.4	20.79	12.47	1148
390.0	0.12318	119.76	8170.4	4923.1	20.79	12.47	1163
400.0	0.12011	120.29	8378.3	5047.9	20.79	12.47	1178
420.0	0.11440	121.30	8794.0	5297.3	20.79	12.47	1207
440.0	0.10921	122.27	9209.7	5546.8	20.79	12.47	1236
460.0	0.10446	123.19	9625.4	5796.2	20.79	12.47	1263
480.0	0.10012	124.08	10041.1	6045.7	20.79	12.47	1290
500.0	0.09612	124.93	10456.8	6295.1	20.79	12.47	1317
550.0	0.08739	126.91	11496.1	6918.7	20.79	12.47	1381
600.0	0.08011	128.72	12535.3	7542.3	20.79	12.47	1442
650.0	0.07396	130.38	13574.6	8165.9	20.79	12.47	1501
700.0	0.06868	131.92	14613.8	8789.5	20.79	12.47	1558
750.0	0.06410	133.35	15653.1	9413.1	20.79	12.47	1612
800.0	0.06010	134.70	16692.3	10036.7	20.79	12.47	1665
850.0	0.05657	135.96	17731.6	10660.3	20.79	12.47	1716
900.0	0.05343	137.14	18770.8	11283.8	20.79	12.47	1766
950.0	0.05062	138.27	19810.1	11907.4	20.79	12.47	1814
1000.0	0.04809	139.33	20849.3	12531.0	20.79	12.47	1861
1100.0	0.04372	141.32	22927.8	13778.2	20.79	12.47	1952
1200.0	0.04008	143.12	25006.3	15025.4	20.79	12.47	2039
1300.0	0.03700	144.79	27084.9	16272.5	20.79	12.47	2122
1400.0	0.03435	146.33	29163.4	17519.7	20.79	12.47	2202
1500.0	0.03206	147.76	31241.9	18766.8	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.5 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	38.51012	7.48	28.1	15.1	7.51	7.00	263
3.0	37.85656	8.97	32.1	18.9	8.84	7.72	260
3.5	37.00909	10.43	36.9	23.4	10.24	8.36	251
4.0	35.95472	11.90	42.4	28.5	11.79	8.85	239
4.5	34.62035	13.40	48.8	34.3	13.90	9.28	224
5.0	32.84485	15.03	56.5	41.3	17.40	9.71	206
5.5	30.25082	16.98	66.8	50.2	24.64	10.21	185
6.0	25.82845	19.80	83.1	63.7	43.31	10.84	161
6.5	19.35019	24.00	109.3	83.5	55.15	11.53	147
7.0	14.80218	27.73	134.5	100.7	45.32	11.90	147
7.5	12.13644	30.59	155.2	114.0	37.97	12.07	152
8.0	10.41999	32.88	172.9	125.0	33.50	12.17	158
8.5	9.21146	34.83	188.9	134.7	30.68	12.24	164
9.0	8.30377	36.52	203.8	143.6	28.78	12.29	170
9.5	7.59001	38.04	217.8	151.9	27.44	12.33	176
10.0	7.00960	39.42	231.3	159.9	26.45	12.36	182
11.0	6.11386	41.87	257.0	175.2	25.08	12.41	193
12.0	5.44692	44.01	281.6	189.8	24.20	12.44	204
13.0	4.92601	45.93	305.5	204.0	23.59	12.47	213
14.0	4.50519	47.66	328.8	217.9	23.14	12.48	222
15.0	4.15656	49.24	351.8	231.5	22.80	12.49	230
16.0	3.86204	50.70	374.5	245.0	22.53	12.50	239
17.0	3.60933	52.06	396.9	258.3	22.32	12.51	246
18.0	3.38971	53.33	419.1	271.6	22.14	12.51	254
19.0	3.19679	54.53	441.2	284.8	21.99	12.52	261
20.0	3.02579	55.65	463.1	297.9	21.87	12.52	268
22.0	2.73562	57.73	506.6	323.9	21.68	12.52	281
24.0	2.49821	59.61	549.8	349.7	21.53	12.52	294
26.0	2.29999	61.33	592.8	375.4	21.42	12.52	306
28.0	2.13177	62.91	635.5	401.0	21.33	12.52	317
30.0	1.98707	64.38	678.1	426.5	21.26	12.52	328
32.0	1.86119	65.75	720.6	451.9	21.20	12.52	339
34.0	1.75062	67.03	762.9	477.3	21.15	12.51	349
36.0	1.65267	68.24	805.2	502.6	21.11	12.51	359
38.0	1.56528	69.38	847.3	527.9	21.07	12.51	369
40.0	1.48679	70.46	889.5	553.2	21.04	12.51	378
45.0	1.32153	72.94	994.5	616.2	20.99	12.51	400
50.0	1.18965	75.14	1099.4	679.1	20.95	12.50	422
55.0	1.08189	77.14	1204.0	741.8	20.92	12.50	442
60.0	0.99215	78.96	1308.5	804.6	20.89	12.50	461
65.0	0.91623	80.63	1412.9	867.2	20.88	12.49	480
70.0	0.85115	82.18	1517.3	929.8	20.86	12.49	497
75.0	0.79474	83.61	1621.6	992.4	20.85	12.49	514
80.0	0.74536	84.96	1725.8	1055.0	20.84	12.49	531
85.0	0.70178	86.22	1830.0	1117.5	20.83	12.49	547
90.0	0.66303	87.41	1934.1	1180.0	20.83	12.49	563
95.0	0.62834	88.54	2038.3	1242.5	20.82	12.49	578
100.0	0.59710	89.61	2142.4	1305.0	20.82	12.49	593

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

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0.5 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.54313	91.59	2350.5	1429.9	20.81	12.48	621
120.0	0.49811	93.40	2558.6	1554.8	20.81	12.48	648
130.0	0.45999	95.07	2766.6	1679.6	20.80	12.48	675
140.0	0.42730	96.61	2974.6	1804.5	20.80	12.48	700
150.0	0.39895	98.04	3182.6	1929.3	20.80	12.48	724
160.0	0.37413	99.39	3390.6	2054.1	20.80	12.48	748
170.0	0.35221	100.65	3598.5	2178.9	20.79	12.48	770
180.0	0.33273	101.84	3806.4	2303.7	20.79	12.48	792
190.0	0.31528	102.96	4014.4	2428.4	20.79	12.48	814
200.0	0.29958	104.03	4222.3	2553.2	20.79	12.48	835
210.0	0.28537	105.04	4430.2	2678.0	20.79	12.48	855
220.0	0.27244	106.01	4638.1	2802.7	20.79	12.48	875
230.0	0.26064	106.93	4845.9	2927.5	20.79	12.48	895
240.0	0.24981	107.82	5053.8	3052.3	20.79	12.48	914
250.0	0.23985	108.66	5261.7	3177.0	20.79	12.48	933
260.0	0.23065	109.48	5469.6	3301.7	20.79	12.48	951
270.0	0.22213	110.26	5677.4	3426.5	20.79	12.48	969
280.0	0.21422	111.02	5885.3	3551.2	20.79	12.48	987
290.0	0.20686	111.75	6093.2	3676.0	20.79	12.48	1004
300.0	0.19998	112.45	6301.0	3800.7	20.79	12.48	1021
310.0	0.19355	113.14	6508.9	3925.5	20.79	12.48	1038
320.0	0.18751	113.80	6716.8	4050.2	20.79	12.48	1055
330.0	0.18184	114.44	6924.6	4174.9	20.79	12.48	1071
340.0	0.17651	115.06	7132.5	4299.7	20.79	12.48	1087
350.0	0.17148	115.66	7340.3	4424.4	20.79	12.48	1103
360.0	0.16672	116.24	7548.2	4549.1	20.79	12.48	1118
370.0	0.16223	116.81	7756.0	4673.9	20.79	12.48	1134
380.0	0.15797	117.37	7963.9	4798.6	20.79	12.48	1149
390.0	0.15392	117.91	8171.8	4923.3	20.79	12.48	1164
400.0	0.15008	118.43	8379.6	5048.0	20.79	12.48	1179
420.0	0.14295	119.45	8795.3	5297.5	20.79	12.48	1208
440.0	0.13646	120.42	9211.0	5546.9	20.79	12.47	1236
460.0	0.13054	121.34	9626.7	5796.4	20.79	12.47	1264
480.0	0.12511	122.22	10042.4	6045.8	20.79	12.47	1291
500.0	0.12011	123.07	10458.1	6295.3	20.79	12.47	1317
550.0	0.10921	125.05	11497.4	6918.9	20.79	12.47	1381
600.0	0.10012	126.86	12536.6	7542.5	20.79	12.47	1443
650.0	0.09243	128.53	13575.8	8166.1	20.79	12.47	1501
700.0	0.08583	130.07	14615.1	8789.7	20.79	12.47	1558
750.0	0.08012	131.50	15654.3	9413.3	20.79	12.47	1612
800.0	0.07512	132.84	16693.6	10036.9	20.79	12.47	1665
850.0	0.07070	134.10	17732.8	10660.5	20.79	12.47	1716
900.0	0.06678	135.29	18772.1	11284.1	20.79	12.47	1766
950.0	0.06326	136.41	19811.3	11907.7	20.79	12.47	1814
1000.0	0.06010	137.48	20850.5	12531.3	20.79	12.47	1861
1100.0	0.05464	139.46	22929.0	13778.5	20.79	12.47	1952
1200.0	0.05009	141.27	25007.5	15025.7	20.79	12.47	2039
1300.0	0.04624	142.93	27086.0	16272.8	20.79	12.47	2122
1400.0	0.04294	144.47	29164.5	17520.0	20.79	12.47	2202
1500.0	0.04008	145.91	31243.1	18767.2	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.6 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	38.88471	7.41	30.5	15.8	7.34	6.85	272
3.0	38.26482	8.86	34.5	18.8	8.67	7.62	269
3.5	37.47319	10.30	39.1	23.1	10.00	8.29	261
4.0	36.50612	11.73	44.5	28.0	11.40	8.78	249
4.5	35.31307	13.17	50.6	33.6	13.19	9.19	236
5.0	33.78933	14.68	57.8	40.0	15.87	9.60	220
5.5	31.72582	16.39	66.8	47.9	20.55	10.04	202
6.0	28.67381	18.54	79.1	58.2	30.05	10.55	182
6.5	24.00910	21.54	98.0	73.0	45.00	11.13	164
7.0	19.06564	25.02	121.4	90.0	46.11	11.62	157
7.5	15.58551	28.01	143.1	104.6	40.57	11.90	158
8.0	13.24668	30.48	162.2	116.9	36.05	12.06	162
8.5	11.59518	32.56	179.4	127.6	32.85	12.16	167
9.0	10.36696	34.37	195.2	137.3	30.58	12.23	172
9.5	9.41349	35.98	210.1	146.3	28.93	12.29	178
10.0	8.64781	37.43	224.2	154.8	27.70	12.33	184
11.0	7.48453	39.98	251.0	170.8	26.01	12.39	194
12.0	6.63302	42.20	276.4	185.9	24.92	12.43	204
13.0	5.97631	44.16	300.9	200.5	24.16	12.46	214
14.0	5.45080	45.93	324.8	214.7	23.61	12.48	223
15.0	5.01861	47.54	348.2	228.6	23.20	12.50	231
16.0	4.65561	49.03	371.2	242.3	22.87	12.51	240
17.0	4.34556	50.41	394.0	255.9	22.61	12.52	247
18.0	4.07710	51.70	416.5	269.3	22.40	12.52	255
19.0	3.84200	52.90	438.8	282.6	22.23	12.53	262
20.0	3.63413	54.04	460.9	295.8	22.08	12.53	269
22.0	3.28245	56.13	504.8	322.1	21.85	12.53	282
24.0	2.99560	58.02	548.4	348.1	21.67	12.53	295
26.0	2.75664	59.75	591.6	373.9	21.54	12.53	307
28.0	2.55420	61.35	634.5	399.6	21.43	12.53	318
30.0	2.38029	62.82	677.3	425.2	21.35	12.53	329
32.0	2.22914	64.20	719.9	450.8	21.28	12.52	340
34.0	2.09648	65.48	762.4	476.2	21.22	12.52	350
36.0	1.97904	66.70	804.8	501.6	21.17	12.52	360
38.0	1.87430	67.84	847.1	527.0	21.13	12.52	370
40.0	1.78027	68.92	889.3	552.3	21.09	12.52	379
45.0	1.58239	71.40	994.6	615.4	21.03	12.51	402
50.0	1.42454	73.62	1099.6	678.4	20.98	12.51	423
55.0	1.29559	75.61	1204.4	741.3	20.94	12.50	443
60.0	1.18821	77.43	1309.0	804.1	20.91	12.50	462
65.0	1.09738	79.11	1413.6	866.8	20.89	12.50	481
70.0	1.01952	80.65	1518.0	929.5	20.88	12.50	498
75.0	0.95202	82.09	1622.3	992.1	20.86	12.49	515
80.0	0.89294	83.44	1726.6	1054.7	20.85	12.49	532
85.0	0.84079	84.70	1830.9	1117.2	20.84	12.49	548
90.0	0.79442	85.90	1935.1	1179.8	20.84	12.49	564
95.0	0.75290	87.02	2039.2	1242.3	20.83	12.49	579
100.0	0.71552	88.09	2143.4	1304.8	20.83	12.49	594

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.6 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.65091	90.07	2351.6	1429.7	20.82	12.49	622
120.0	0.59702	91.89	2559.7	1554.7	20.81	12.49	649
130.0	0.55138	93.55	2767.8	1679.6	20.81	12.48	675
140.0	0.51222	95.09	2975.8	1804.4	20.80	12.48	700
150.0	0.47827	96.53	3183.8	1929.3	20.80	12.48	725
160.0	0.44854	97.87	3391.8	2054.1	20.80	12.48	748
170.0	0.42229	99.13	3599.8	2178.9	20.80	12.48	771
180.0	0.39895	100.32	3807.7	2303.7	20.79	12.48	793
190.0	0.37805	101.44	4015.6	2428.5	20.79	12.48	815
200.0	0.35923	102.51	4223.5	2553.3	20.79	12.48	836
210.0	0.34220	103.52	4431.4	2678.0	20.79	12.48	856
220.0	0.32671	104.49	4639.3	2802.8	20.79	12.48	876
230.0	0.31256	105.42	4847.2	2927.6	20.79	12.48	895
240.0	0.29959	106.30	5055.1	3052.3	20.79	12.48	915
250.0	0.28765	107.15	5263.0	3177.1	20.79	12.48	933
260.0	0.27663	107.96	5470.9	3301.9	20.79	12.48	952
270.0	0.26642	108.75	5678.8	3426.6	20.79	12.48	970
280.0	0.25694	109.50	5886.6	3551.4	20.79	12.48	987
290.0	0.24811	110.23	6094.5	3676.1	20.79	12.48	1005
300.0	0.23986	110.94	6302.4	3800.8	20.79	12.48	1022
310.0	0.23215	111.62	6510.2	3925.6	20.79	12.48	1039
320.0	0.22491	112.28	6718.1	4050.3	20.79	12.48	1055
330.0	0.21812	112.92	6925.9	4175.1	20.79	12.48	1071
340.0	0.21172	113.54	7133.8	4299.8	20.79	12.48	1087
350.0	0.20569	114.14	7341.7	4424.5	20.79	12.48	1103
360.0	0.19999	114.73	7549.5	4549.3	20.79	12.48	1119
370.0	0.19460	115.30	7757.4	4674.0	20.79	12.48	1134
380.0	0.18949	115.85	7965.2	4798.7	20.79	12.48	1149
390.0	0.18464	116.39	8173.1	4923.5	20.79	12.48	1164
400.0	0.18004	116.92	8380.9	5048.2	20.79	12.48	1179
420.0	0.17148	117.93	8796.6	5297.7	20.79	12.48	1208
440.0	0.16371	118.90	9212.3	5547.1	20.79	12.48	1236
460.0	0.15660	119.82	9628.0	5796.6	20.79	12.48	1264
480.0	0.15009	120.71	10043.7	6046.0	20.79	12.48	1291
500.0	0.14410	121.56	10459.4	6295.5	20.79	12.48	1317
550.0	0.13102	123.54	11498.7	6919.1	20.78	12.48	1382
600.0	0.12012	125.35	12537.9	7542.7	20.78	12.47	1443
650.0	0.11089	127.01	13577.1	8166.4	20.78	12.47	1502
700.0	0.10298	128.55	14616.4	8790.0	20.78	12.47	1558
750.0	0.09613	129.98	15655.6	9413.6	20.78	12.47	1613
800.0	0.09012	131.33	16694.8	10037.2	20.78	12.47	1665
850.0	0.08483	132.59	17734.1	10660.8	20.78	12.47	1717
900.0	0.08012	133.77	18773.3	11284.4	20.79	12.47	1766
950.0	0.07591	134.90	19812.5	11908.0	20.79	12.47	1815
1000.0	0.07212	135.96	20851.8	12531.6	20.79	12.47	1862
1100.0	0.06557	137.94	22930.3	13778.8	20.79	12.47	1952
1200.0	0.06011	139.75	25008.7	15026.0	20.79	12.47	2039
1300.0	0.05548	141.42	27087.2	16273.2	20.79	12.47	2122
1400.0	0.05152	142.96	29165.7	17520.4	20.79	12.47	2202
1500.0	0.04809	144.39	31244.2	18767.5	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.7 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	39.23614	7.35	32.9	15.0	7.19	6.71	280
3.0	38.64445	8.77	36.8	18.7	8.53	7.53	278
3.5	37.89911	10.18	41.4	22.9	9.81	8.22	270
4.0	37.00229	11.58	46.6	27.7	11.09	8.71	259
4.5	35.91745	12.97	52.5	33.0	12.65	9.12	247
5.0	34.57116	14.41	59.3	39.1	14.84	9.51	233
5.5	32.83096	15.97	67.5	46.2	18.28	9.92	216
6.0	30.45030	17.79	78.0	55.1	24.30	10.37	199
6.5	27.03632	20.12	92.6	66.7	34.59	10.86	181
7.0	22.71181	23.03	112.3	81.5	42.44	11.35	170
7.5	18.87726	25.93	133.3	96.3	40.87	11.71	167
8.0	16.06687	28.46	152.9	109.3	37.30	11.93	168
8.5	14.02008	30.62	170.7	120.8	34.27	12.07	172
9.0	12.48156	32.51	187.3	131.2	31.94	12.17	176
9.5	11.28580	34.19	202.8	140.7	30.15	12.24	181
10.0	10.32861	35.70	217.5	149.7	28.78	12.29	186
11.0	8.88510	38.35	245.2	166.4	26.85	12.37	196
12.0	7.83959	40.62	271.4	182.1	25.58	12.42	206
13.0	7.04058	42.64	296.5	197.1	24.70	12.46	215
14.0	6.40594	44.44	320.9	211.6	24.06	12.48	224
15.0	5.88712	46.08	344.7	225.8	23.58	12.50	233
16.0	5.45344	47.59	368.1	239.7	23.20	12.51	241
17.0	5.08449	48.99	391.1	253.4	22.90	12.52	248
18.0	4.76607	50.29	413.9	267.0	22.66	12.53	256
19.0	4.48796	51.51	436.4	280.5	22.45	12.53	263
20.0	4.24261	52.66	458.8	293.8	22.28	12.54	270
22.0	3.82864	54.77	503.1	320.3	22.01	12.54	283
24.0	3.49191	56.68	546.9	346.4	21.81	12.54	296
26.0	3.21199	58.42	590.4	372.4	21.66	12.54	308
28.0	2.97521	60.02	633.5	398.3	21.53	12.54	320
30.0	2.77204	61.50	676.5	424.0	21.43	12.54	331
32.0	2.59563	62.88	719.3	449.6	21.35	12.53	341
34.0	2.44091	64.17	761.9	475.1	21.29	12.53	351
36.0	2.30402	65.39	804.5	500.6	21.23	12.53	361
38.0	2.18199	66.53	846.9	526.0	21.18	12.53	371
40.0	2.07248	67.62	889.2	551.4	21.14	12.52	380
45.0	1.84212	70.10	994.7	614.7	21.06	12.52	403
50.0	1.65844	72.32	1099.9	677.8	21.01	12.51	424
55.0	1.50842	74.32	1204.8	740.7	20.97	12.51	444
60.0	1.38351	76.14	1309.6	803.6	20.94	12.51	463
65.0	1.27785	77.82	1414.2	866.4	20.91	12.50	482
70.0	1.18729	79.37	1518.7	929.1	20.89	12.50	499
75.0	1.10877	80.81	1623.1	991.7	20.88	12.50	516
80.0	1.04004	82.15	1727.4	1054.4	20.86	12.50	533
85.0	0.97937	83.42	1831.7	1117.0	20.85	12.50	549
90.0	0.92541	84.61	1936.0	1179.5	20.84	12.49	564
95.0	0.87711	85.74	2040.2	1242.1	20.84	12.49	580
100.0	0.83361	86.81	2144.4	1304.6	20.83	12.49	594

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.7 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.75842	88.79	2352.6	1429.6	20.82	12.49	623
120.0	0.69569	90.60	2560.8	1554.6	20.81	12.49	650
130.0	0.64256	92.27	2768.9	1679.5	20.81	12.49	676
140.0	0.59698	93.81	2977.0	1804.4	20.81	12.49	701
150.0	0.55744	95.25	3185.0	1929.2	20.80	12.48	725
160.0	0.52282	96.59	3393.0	2054.1	20.80	12.48	749
170.0	0.49225	97.85	3601.0	2178.9	20.80	12.48	772
180.0	0.46506	99.04	3808.9	2303.7	20.80	12.48	794
190.0	0.44072	100.16	4016.9	2428.5	20.79	12.48	815
200.0	0.41880	101.23	4224.8	2553.3	20.79	12.48	836
210.0	0.39896	102.24	4432.7	2678.1	20.79	12.48	857
220.0	0.38091	103.21	4640.6	2802.9	20.79	12.48	877
230.0	0.36443	104.13	4848.5	2927.7	20.79	12.48	896
240.0	0.34931	105.02	5056.4	3052.4	20.79	12.48	915
250.0	0.33540	105.87	5264.3	3177.2	20.79	12.48	934
260.0	0.32256	106.68	5472.2	3302.0	20.79	12.48	952
270.0	0.31066	107.47	5680.1	3426.7	20.79	12.48	970
280.0	0.29961	108.22	5887.9	3551.5	20.79	12.48	988
290.0	0.28931	108.95	6095.8	3676.2	20.79	12.48	1005
300.0	0.27971	109.66	6303.7	3801.0	20.79	12.48	1022
310.0	0.27071	110.34	6511.5	3925.7	20.79	12.48	1039
320.0	0.26228	111.00	6719.4	4050.5	20.79	12.48	1055
330.0	0.25436	111.64	6927.3	4175.2	20.79	12.48	1072
340.0	0.24691	112.26	7135.1	4300.0	20.79	12.48	1088
350.0	0.23987	112.86	7343.0	4424.7	20.79	12.48	1104
360.0	0.23323	113.45	7550.8	4549.4	20.79	12.48	1119
370.0	0.22695	114.02	7758.7	4674.2	20.79	12.48	1134
380.0	0.22099	114.57	7966.5	4798.9	20.79	12.48	1150
390.0	0.21534	115.11	8174.4	4923.6	20.79	12.48	1165
400.0	0.20997	115.64	8382.2	5048.4	20.79	12.48	1179
420.0	0.20000	116.65	8797.9	5297.8	20.79	12.48	1208
440.0	0.19093	117.62	9213.6	5547.3	20.79	12.48	1237
460.0	0.18265	118.54	9629.3	5796.8	20.79	12.48	1264
480.0	0.17506	119.43	10045.0	6046.2	20.78	12.48	1291
500.0	0.16807	120.28	10460.7	6295.7	20.78	12.48	1318
550.0	0.15282	122.26	11500.0	6919.3	20.78	12.48	1382
600.0	0.14011	124.07	12539.2	7543.0	20.78	12.48	1443
650.0	0.12935	125.73	13578.4	8166.6	20.78	12.48	1502
700.0	0.12013	127.27	14617.6	8790.2	20.78	12.48	1558
750.0	0.11213	128.70	15656.9	9413.8	20.78	12.47	1613
800.0	0.10513	130.04	16696.1	10037.4	20.78	12.47	1666
850.0	0.09895	131.30	17735.3	10661.1	20.78	12.47	1717
900.0	0.09346	132.49	18774.5	11284.7	20.78	12.47	1766
950.0	0.08855	133.62	19813.8	11908.3	20.78	12.47	1815
1000.0	0.08413	134.68	20853.0	12531.9	20.78	12.47	1862
1100.0	0.07648	136.66	22931.5	13779.1	20.78	12.47	1952
1200.0	0.07012	138.47	25009.9	15026.3	20.78	12.47	2039
1300.0	0.06473	140.14	27088.4	16273.5	20.79	12.47	2122
1400.0	0.06011	141.68	29166.9	17520.7	20.79	12.47	2202
1500.0	0.05610	143.11	31245.4	18767.9	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.8 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	39.56771	7.28	35.2	15.0	7.05	6.59	288
3.0	38.99994	8.68	39.1	18.6	8.40	7.45	286
3.5	38.29363	10.07	43.6	22.7	9.64	8.15	279
4.0	37.45479	11.44	48.7	27.4	10.84	8.65	269
4.5	36.45601	12.79	54.5	32.5	12.23	9.06	257
5.0	35.24288	14.17	61.0	38.3	14.09	9.44	244
5.5	33.72400	15.63	68.7	45.0	16.81	9.83	229
6.0	31.74508	17.27	78.1	52.9	21.15	10.23	213
6.5	29.06523	19.22	90.3	62.8	28.19	10.68	197
7.0	25.54593	21.62	106.6	75.3	36.58	11.13	183
7.5	21.82059	24.29	125.9	89.2	39.35	11.52	177
8.0	18.73876	26.78	145.2	102.5	37.47	11.79	176
8.5	16.38614	28.97	163.3	114.4	34.95	11.97	178
9.0	14.57982	30.90	180.2	125.3	32.79	12.10	181
9.5	13.16119	32.63	196.1	135.3	31.03	12.19	185
10.0	12.02054	34.18	211.3	144.7	29.62	12.26	189
11.0	10.29947	36.90	239.8	162.1	27.57	12.35	198
12.0	9.05748	39.24	266.6	178.3	26.18	12.41	208
13.0	8.11321	41.29	292.3	193.7	25.20	12.45	217
14.0	7.36694	43.13	317.1	208.5	24.48	12.48	226
15.0	6.75956	44.80	341.3	223.0	23.94	12.50	234
16.0	6.25378	46.33	365.0	237.1	23.51	12.52	242
17.0	5.82486	47.75	388.4	251.0	23.18	12.53	250
18.0	5.45566	49.07	411.4	264.8	22.90	12.54	257
19.0	5.13395	50.30	434.2	278.3	22.67	12.54	264
20.0	4.85069	51.46	456.7	291.8	22.48	12.55	271
22.0	4.37385	53.58	501.4	318.5	22.17	12.55	285
24.0	3.98694	55.50	545.5	344.8	21.95	12.55	297
26.0	3.66589	57.25	589.2	371.0	21.77	12.55	309
28.0	3.39471	58.86	632.6	396.9	21.63	12.55	321
30.0	3.16228	60.35	675.7	422.7	21.52	12.54	332
32.0	2.96064	61.73	718.7	448.5	21.43	12.54	342
34.0	2.78390	63.03	761.5	474.1	21.35	12.54	353
36.0	2.62762	64.25	804.1	499.6	21.29	12.54	362
38.0	2.48836	65.40	846.6	525.1	21.24	12.53	372
40.0	2.36343	66.49	889.1	550.6	21.19	12.53	381
45.0	2.10074	68.98	994.8	614.0	21.10	12.52	404
50.0	1.89136	71.20	1100.1	677.1	21.04	12.52	425
55.0	1.72039	73.20	1205.2	740.2	20.99	12.51	445
60.0	1.57806	75.03	1310.1	803.1	20.96	12.51	464
65.0	1.45766	76.70	1414.8	865.9	20.93	12.51	483
70.0	1.35446	78.25	1519.4	928.7	20.91	12.50	500
75.0	1.26499	79.69	1623.9	991.4	20.89	12.50	517
80.0	1.18666	81.04	1728.3	1054.1	20.87	12.50	534
85.0	1.11752	82.31	1832.6	1116.7	20.86	12.50	550
90.0	1.05602	83.50	1936.9	1179.3	20.85	12.50	565
95.0	1.00096	84.63	2041.1	1241.9	20.85	12.50	580
100.0	0.95137	85.69	2145.3	1304.4	20.84	12.49	595

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.8 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.86565	87.68	2353.7	1429.5	20.83	12.49	624
120.0	0.79413	89.49	2561.9	1554.5	20.82	12.49	651
130.0	0.73354	91.16	2770.0	1679.4	20.81	12.49	677
140.0	0.68155	92.70	2978.1	1804.3	20.81	12.49	702
150.0	0.63646	94.14	3186.2	1929.2	20.80	12.49	726
160.0	0.59696	95.48	3394.2	2054.1	20.80	12.49	750
170.0	0.56209	96.74	3602.2	2178.9	20.80	12.48	772
180.0	0.53107	97.93	3810.2	2303.7	20.80	12.48	794
190.0	0.50329	99.05	4018.1	2428.6	20.79	12.48	816
200.0	0.47828	100.12	4226.1	2553.4	20.79	12.48	837
210.0	0.45564	101.13	4434.0	2678.2	20.79	12.48	857
220.0	0.43504	102.10	4641.9	2803.0	20.79	12.48	877
230.0	0.41623	103.02	4849.8	2927.7	20.79	12.48	897
240.0	0.39897	103.91	5057.7	3052.5	20.79	12.48	916
250.0	0.38309	104.76	5265.6	3177.3	20.79	12.48	934
260.0	0.36843	105.57	5473.5	3302.1	20.79	12.48	953
270.0	0.35485	106.36	5681.4	3426.8	20.79	12.48	971
280.0	0.34223	107.11	5889.2	3551.6	20.79	12.48	988
290.0	0.33048	107.84	6097.1	3676.3	20.79	12.48	1006
300.0	0.31951	108.55	6305.0	3801.1	20.79	12.48	1023
310.0	0.30925	109.23	6512.9	3925.9	20.79	12.48	1039
320.0	0.29962	109.89	6720.7	4050.6	20.79	12.48	1056
330.0	0.29058	110.53	6928.6	4175.4	20.79	12.48	1072
340.0	0.28206	111.15	7136.4	4300.1	20.79	12.48	1088
350.0	0.27403	111.75	7344.3	4424.8	20.79	12.48	1104
360.0	0.26645	112.34	7552.1	4549.6	20.79	12.48	1119
370.0	0.25927	112.91	7760.0	4674.3	20.79	12.48	1135
380.0	0.25247	113.46	7967.9	4799.1	20.79	12.48	1150
390.0	0.24602	114.00	8175.7	4923.8	20.79	12.48	1165
400.0	0.23989	114.53	8383.6	5048.5	20.79	12.48	1180
420.0	0.22850	115.54	8799.3	5298.0	20.79	12.48	1209
440.0	0.21814	116.51	9215.0	5547.5	20.79	12.48	1237
460.0	0.20868	117.43	9630.6	5797.0	20.78	12.48	1265
480.0	0.20001	118.32	10046.3	6046.4	20.78	12.48	1292
500.0	0.19203	119.17	10462.0	6295.9	20.78	12.48	1318
550.0	0.17461	121.15	11501.3	6919.5	20.78	12.48	1382
600.0	0.16009	122.96	12540.5	7543.2	20.78	12.48	1443
650.0	0.14780	124.62	13579.7	8166.8	20.78	12.48	1502
700.0	0.13726	126.16	14618.9	8790.5	20.78	12.48	1559
750.0	0.12813	127.59	15658.1	9414.1	20.78	12.48	1613
800.0	0.12013	128.93	16697.3	10037.7	20.78	12.48	1666
850.0	0.11307	130.19	17736.6	10661.3	20.78	12.48	1717
900.0	0.10680	131.38	18775.8	11284.9	20.78	12.48	1767
950.0	0.10119	132.51	19815.0	11908.6	20.78	12.47	1815
1000.0	0.09613	133.57	20854.2	12532.2	20.78	12.47	1862
1100.0	0.08740	135.55	22932.7	13779.4	20.78	12.47	1953
1200.0	0.08013	137.36	25011.1	15026.6	20.78	12.47	2039
1300.0	0.07397	139.03	27089.6	16273.8	20.78	12.47	2122
1400.0	0.06869	140.57	29168.1	17521.0	20.78	12.47	2202
1500.0	0.06411	142.00	31246.5	18768.2	20.79	12.47	2280

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.9 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	39.88205	7.22	37.6	15.0	6.92	6.47	295
3.0	39.33476	8.60	41.4	18.5	8.28	7.38	293
3.5	38.66184	9.97	45.9	22.6	9.50	8.10	287
4.0	37.87178	11.31	50.9	27.1	10.63	8.60	277
4.5	36.94339	12.64	56.5	32.1	11.89	9.00	266
5.0	35.83461	13.97	62.8	37.7	13.51	9.37	254
5.5	34.47844	15.36	70.1	44.0	15.78	9.75	240
6.0	32.76966	16.86	78.8	51.3	19.14	10.13	226
6.5	30.55092	18.59	89.6	60.1	24.30	10.54	210
7.0	27.67201	20.64	103.4	70.9	31.26	10.96	197
7.5	24.32732	22.99	120.5	83.5	36.39	11.35	188
8.0	21.18874	25.38	139.0	96.5	36.77	11.66	184
8.5	18.63054	27.56	157.0	108.7	35.08	11.87	184
9.0	16.61008	29.51	174.0	119.8	33.21	12.02	186
9.5	14.99959	31.26	190.2	130.2	31.58	12.13	190
10.0	13.69342	32.84	205.7	139.9	30.21	12.22	193
11.0	11.71063	35.62	234.8	157.9	28.14	12.33	201
12.0	10.27670	38.00	262.1	174.6	26.69	12.40	210
13.0	9.18798	40.09	288.3	190.3	25.64	12.45	219
14.0	8.32974	41.97	313.5	205.5	24.87	12.48	227
15.0	7.63318	43.66	338.1	220.2	24.27	12.51	236
16.0	7.05466	45.21	362.1	234.5	23.81	12.52	244
17.0	6.56523	46.64	385.7	248.6	23.43	12.54	251
18.0	6.14484	47.97	409.0	262.5	23.13	12.54	259
19.0	5.77919	49.22	432.0	276.2	22.87	12.55	266
20.0	5.45775	50.38	454.7	289.8	22.66	12.55	273
22.0	4.91770	52.53	499.7	316.7	22.33	12.56	286
24.0	4.48044	54.46	544.1	343.2	22.08	12.56	299
26.0	4.11821	56.22	588.1	369.5	21.88	12.56	311
28.0	3.81262	57.83	631.7	395.6	21.73	12.56	322
30.0	3.55095	59.33	675.0	421.5	21.60	12.55	333
32.0	3.32413	60.72	718.1	447.3	21.50	12.55	344
34.0	3.12543	62.02	761.0	473.0	21.42	12.55	354
36.0	2.94982	63.24	803.8	498.7	21.35	12.54	364
38.0	2.79339	64.40	846.4	524.2	21.29	12.54	373
40.0	2.65311	65.49	888.9	549.7	21.24	12.54	383
45.0	2.35824	67.98	994.9	613.2	21.14	12.53	405
50.0	2.12331	70.21	1100.4	676.5	21.07	12.52	426
55.0	1.93151	72.21	1205.6	739.6	21.02	12.52	446
60.0	1.77185	74.04	1310.6	802.6	20.98	12.52	465
65.0	1.63680	75.72	1415.4	865.5	20.95	12.51	484
70.0	1.52104	77.27	1520.1	928.3	20.92	12.51	501
75.0	1.42067	78.71	1624.6	991.1	20.90	12.51	518
80.0	1.33281	80.06	1729.1	1053.8	20.89	12.50	535
85.0	1.25524	81.32	1833.5	1116.5	20.87	12.50	551
90.0	1.18624	82.52	1937.8	1179.1	20.86	12.50	566
95.0	1.12446	83.64	2042.1	1241.7	20.85	12.50	581
100.0	1.06882	84.71	2146.3	1304.3	20.84	12.50	596

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.9 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.97261	86.70	2354.7	1429.3	20.83	12.49	624
120.0	0.89233	88.51	2563.0	1554.4	20.82	12.49	652
130.0	0.82432	90.18	2771.2	1679.3	20.82	12.49	678
140.0	0.76596	91.72	2979.3	1804.3	20.81	12.49	703
150.0	0.71532	93.16	3187.4	1929.2	20.81	12.49	727
160.0	0.67097	94.50	3395.4	2054.1	20.80	12.49	750
170.0	0.63181	95.76	3603.4	2178.9	20.80	12.49	773
180.0	0.59697	96.95	3811.4	2303.8	20.80	12.49	795
190.0	0.56577	98.07	4019.4	2428.6	20.80	12.48	816
200.0	0.53767	99.14	4227.3	2553.4	20.79	12.48	837
210.0	0.51224	100.15	4435.3	2678.2	20.79	12.48	858
220.0	0.48910	101.12	4643.2	2803.0	20.79	12.48	878
230.0	0.46796	102.05	4851.1	2927.8	20.79	12.48	897
240.0	0.44857	102.93	5059.0	3052.6	20.79	12.48	916
250.0	0.43073	103.78	5266.9	3177.4	20.79	12.48	935
260.0	0.41425	104.59	5474.8	3302.2	20.79	12.48	953
270.0	0.39899	105.38	5682.7	3426.9	20.79	12.48	971
280.0	0.38481	106.14	5890.6	3551.7	20.79	12.48	989
290.0	0.37161	106.86	6098.4	3676.5	20.79	12.48	1006
300.0	0.35928	107.57	6306.3	3801.2	20.79	12.48	1023
310.0	0.34774	108.25	6514.2	3926.0	20.79	12.48	1040
320.0	0.33692	108.91	6722.0	4050.7	20.79	12.48	1056
330.0	0.32676	109.55	6929.9	4175.5	20.79	12.48	1073
340.0	0.31719	110.17	7137.8	4300.2	20.79	12.48	1089
350.0	0.30816	110.77	7345.6	4425.0	20.79	12.48	1104
360.0	0.29964	111.36	7553.5	4549.7	20.79	12.48	1120
370.0	0.29157	111.93	7761.3	4674.5	20.79	12.48	1135
380.0	0.28393	112.48	7969.2	4799.2	20.79	12.48	1150
390.0	0.27667	113.02	8177.0	4924.0	20.79	12.48	1165
400.0	0.26978	113.55	8384.9	5048.7	20.79	12.48	1180
420.0	0.25698	114.56	8800.6	5298.2	20.79	12.48	1209
440.0	0.24533	115.53	9216.3	5547.7	20.78	12.48	1237
460.0	0.23470	116.45	9632.0	5797.2	20.78	12.48	1265
480.0	0.22495	117.34	10047.6	6046.6	20.78	12.48	1292
500.0	0.21598	118.19	10463.3	6296.1	20.78	12.48	1318
550.0	0.19639	120.17	11502.6	6919.8	20.78	12.48	1382
600.0	0.18006	121.98	12541.8	7543.4	20.78	12.48	1444
650.0	0.16624	123.64	13581.0	8167.1	20.78	12.48	1502
700.0	0.15439	125.18	14620.2	8790.7	20.78	12.48	1559
750.0	0.14412	126.61	15659.4	9414.3	20.78	12.48	1613
800.0	0.13513	127.96	16698.6	10038.0	20.78	12.48	1666
850.0	0.12719	129.22	17737.8	10661.6	20.78	12.48	1717
900.0	0.12013	130.40	18777.0	11285.2	20.78	12.48	1767
950.0	0.11382	131.53	19816.2	11908.8	20.78	12.48	1815
1000.0	0.10814	132.59	20855.5	12532.5	20.78	12.48	1862
1100.0	0.09832	134.57	22933.9	13779.7	20.78	12.48	1953
1200.0	0.09013	136.38	25012.3	15026.9	20.78	12.47	2039
1300.0	0.08321	138.05	27090.8	16274.2	20.78	12.47	2123
1400.0	0.07727	139.59	29169.2	17521.4	20.78	12.47	2202
1500.0	0.07212	141.02	31247.7	18768.6	20.78	12.47	2280

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

1 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	40.18128	7.16	40.0	15.1	6.80	6.36	302
3.0	39.65166	8.52	43.7	18.5	8.18	7.31	301
3.5	39.00762	9.88	48.1	22.5	9.37	8.05	294
4.0	38.25924	11.20	53.1	26.9	10.45	8.56	285
4.5	37.38969	12.50	58.6	31.8	11.61	8.95	275
5.0	36.36531	13.79	64.7	37.2	13.06	9.32	263
5.5	35.13471	15.12	71.7	43.2	15.00	9.68	251
6.0	33.62160	16.54	79.8	50.1	17.75	10.05	237
6.5	31.71668	18.11	89.7	58.1	21.76	10.43	223
7.0	29.29882	19.91	101.9	67.7	27.29	10.82	209
7.5	26.38891	21.99	117.0	79.1	32.85	11.20	199
8.0	23.37746	24.21	134.2	91.4	35.27	11.52	193
8.5	20.72143	26.34	151.7	103.5	34.75	11.77	192
9.0	18.54266	28.29	168.8	114.8	33.32	11.95	193
9.5	16.77394	30.05	185.1	125.4	31.87	12.08	195
10.0	15.32408	31.65	200.7	135.4	30.59	12.17	198
11.0	13.10332	34.47	230.2	153.9	28.57	12.30	205
12.0	11.48753	36.89	258.0	170.9	27.10	12.39	213
13.0	10.25860	39.01	284.5	187.0	26.02	12.44	221
14.0	9.29014	40.91	310.1	202.5	25.20	12.48	229
15.0	8.50506	42.63	335.0	217.4	24.57	12.51	237
16.0	7.85402	44.20	359.3	232.0	24.07	12.53	245
17.0	7.30410	45.64	383.2	246.3	23.67	12.54	253
18.0	6.83247	46.99	406.7	260.3	23.34	12.55	260
19.0	6.42282	48.24	429.9	274.2	23.07	12.56	267
20.0	6.06315	49.42	452.8	287.9	22.84	12.56	274
22.0	5.45982	51.58	498.1	314.9	22.47	12.57	287
24.0	4.97218	53.52	542.8	341.6	22.20	12.57	300
26.0	4.56877	55.29	587.0	368.1	21.99	12.57	312
28.0	4.22882	56.91	630.8	394.3	21.82	12.56	323
30.0	3.93799	58.41	674.3	420.3	21.69	12.56	334
32.0	3.68604	59.81	717.5	446.2	21.58	12.56	345
34.0	3.46547	61.11	760.6	472.0	21.48	12.55	355
36.0	3.27060	62.34	803.5	497.7	21.41	12.55	365
38.0	3.09709	63.50	846.2	523.3	21.34	12.55	374
40.0	2.94152	64.59	888.8	548.9	21.29	12.54	384
45.0	2.61465	67.09	995.0	612.5	21.18	12.54	406
50.0	2.35430	69.32	1100.7	675.9	21.10	12.53	427
55.0	2.14179	71.32	1206.0	739.1	21.04	12.52	447
60.0	1.96490	73.15	1311.1	802.2	21.00	12.52	466
65.0	1.81529	74.83	1416.0	865.1	20.96	12.52	485
70.0	1.68703	76.38	1520.7	928.0	20.94	12.51	502
75.0	1.57584	77.83	1625.4	990.8	20.91	12.51	519
80.0	1.47849	79.18	1729.9	1053.5	20.90	12.51	536
85.0	1.39253	80.44	1834.3	1116.2	20.88	12.50	552
90.0	1.31607	81.64	1938.7	1178.9	20.87	12.50	567
95.0	1.24760	82.77	2043.0	1241.5	20.86	12.50	582
100.0	1.18594	83.84	2147.3	1304.1	20.85	12.50	597

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

1 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	1.07930	85.82	2355.8	1429.2	20.84	12.50	625
120.0	0.99031	87.63	2564.1	1554.3	20.83	12.49	652
130.0	0.91490	89.30	2772.3	1679.3	20.82	12.49	678
140.0	0.85019	90.84	2980.5	1804.2	20.81	12.49	703
150.0	0.79404	92.28	3188.6	1929.2	20.81	12.49	727
160.0	0.74485	93.62	3396.6	2054.1	20.80	12.49	751
170.0	0.70141	94.88	3604.7	2178.9	20.80	12.49	774
180.0	0.66276	96.07	3812.7	2303.8	20.80	12.49	796
190.0	0.62815	97.20	4020.6	2428.6	20.80	12.49	817
200.0	0.59698	98.26	4228.6	2553.5	20.80	12.49	838
210.0	0.56876	99.28	4436.6	2678.3	20.79	12.48	858
220.0	0.54308	100.25	4644.5	2803.1	20.79	12.48	878
230.0	0.51963	101.17	4852.4	2927.9	20.79	12.48	898
240.0	0.49812	102.05	5060.3	3052.7	20.79	12.48	917
250.0	0.47832	102.90	5268.2	3177.5	20.79	12.48	935
260.0	0.46003	103.72	5476.1	3302.3	20.79	12.48	954
270.0	0.44309	104.50	5684.0	3427.0	20.79	12.48	972
280.0	0.42735	105.26	5891.9	3551.8	20.79	12.48	989
290.0	0.41270	105.99	6099.7	3676.6	20.79	12.48	1007
300.0	0.39901	106.69	6307.6	3801.4	20.79	12.48	1024
310.0	0.38621	107.38	6515.5	3926.1	20.79	12.48	1040
320.0	0.37420	108.04	6723.3	4050.9	20.79	12.48	1057
330.0	0.36291	108.67	6931.2	4175.6	20.79	12.48	1073
340.0	0.35229	109.30	7139.1	4300.4	20.79	12.48	1089
350.0	0.34227	109.90	7346.9	4425.1	20.79	12.48	1105
360.0	0.33280	110.48	7554.8	4549.9	20.79	12.48	1120
370.0	0.32384	111.05	7762.6	4674.6	20.79	12.48	1136
380.0	0.31536	111.61	7970.5	4799.4	20.79	12.48	1151
390.0	0.30730	112.15	8178.3	4924.1	20.79	12.48	1166
400.0	0.29965	112.67	8386.2	5048.9	20.79	12.48	1180
420.0	0.28544	113.69	8801.9	5298.4	20.78	12.48	1209
440.0	0.27251	114.65	9217.6	5547.9	20.78	12.48	1238
460.0	0.26070	115.58	9633.3	5797.3	20.78	12.48	1265
480.0	0.24987	116.46	10049.0	6046.8	20.78	12.48	1292
500.0	0.23991	117.31	10464.6	6296.3	20.78	12.48	1319
550.0	0.21816	119.29	11503.8	6920.0	20.78	12.48	1383
600.0	0.20003	121.10	12543.1	7543.6	20.78	12.48	1444
650.0	0.18468	122.76	13582.3	8167.3	20.78	12.48	1503
700.0	0.17152	124.30	14621.5	8790.9	20.78	12.48	1559
750.0	0.16010	125.74	15660.7	9414.6	20.78	12.48	1614
800.0	0.15012	127.08	16699.9	10038.2	20.78	12.48	1666
850.0	0.14130	128.34	17739.1	10661.9	20.78	12.48	1717
900.0	0.13347	129.53	18778.3	11285.5	20.78	12.48	1767
950.0	0.12645	130.65	19817.5	11909.1	20.78	12.48	1815
1000.0	0.12014	131.72	20856.7	12532.7	20.78	12.48	1862
1100.0	0.10923	133.70	22935.1	13780.0	20.78	12.48	1953
1200.0	0.10014	135.51	25013.5	15027.2	20.78	12.48	2040
1300.0	0.09245	137.17	27092.0	16274.5	20.78	12.48	2123
1400.0	0.08585	138.71	29170.4	17521.7	20.78	12.48	2203
1500.0	0.08013	140.15	31248.9	18768.9	20.78	12.47	2280

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

1.5 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.0	41.83779	5.54	48.5	12.6	6.85	6.75	325
2.5	41.50286	6.90	51.5	15.4	6.32	5.90	334
3.0	41.03268	8.19	55.1	18.5	7.80	7.05	333
3.5	40.48891	9.48	59.3	22.2	8.93	7.87	328
4.0	39.88297	10.73	64.0	26.4	9.83	8.39	321
4.5	39.20695	11.94	69.1	30.8	10.69	8.77	312
5.0	38.44495	13.12	74.7	35.7	11.66	9.11	303
5.5	37.57595	14.28	80.8	40.9	12.83	9.43	293
6.0	36.57394	15.46	87.6	46.5	14.30	9.75	282
6.5	35.40704	16.67	95.2	52.8	16.16	10.08	272
7.0	34.03812	17.95	103.8	59.7	18.52	10.40	261
7.5	32.43116	19.33	113.8	67.5	21.45	10.73	250
8.0	30.57263	20.82	125.3	76.3	24.78	11.04	240
8.5	28.51217	22.42	138.5	85.9	27.88	11.32	232
9.0	26.38515	24.07	153.0	96.2	29.91	11.57	227
9.5	24.35382	25.71	168.2	106.6	30.64	11.78	225
10.0	22.51898	27.28	183.5	116.9	30.49	11.94	225
11.0	19.49715	30.14	213.4	136.5	29.31	12.17	227
12.0	17.18430	32.64	242.1	154.8	28.09	12.31	232
13.0	15.37685	34.84	269.7	172.2	27.08	12.41	237
14.0	13.92969	36.82	296.4	188.7	26.26	12.47	243
15.0	12.74587	38.61	322.3	204.6	25.59	12.51	250
16.0	11.75953	40.24	347.6	220.0	25.03	12.54	257
17.0	10.92472	41.74	372.4	235.1	24.57	12.57	263
18.0	10.20854	43.14	396.7	249.8	24.17	12.58	270
19.0	9.58692	44.43	420.7	264.3	23.84	12.59	276
20.0	9.04185	45.65	444.4	278.5	23.56	12.60	283
22.0	8.12971	47.87	491.1	306.5	23.09	12.61	295
24.0	7.39504	49.86	536.9	334.0	22.74	12.61	307
26.0	6.78926	51.67	582.1	361.1	22.46	12.61	319
28.0	6.28023	53.33	626.7	387.9	22.24	12.60	330
30.0	5.84582	54.86	671.0	414.4	22.05	12.60	341
32.0	5.47027	56.28	715.0	440.8	21.90	12.60	351
34.0	5.14204	57.60	758.6	466.9	21.78	12.59	361
36.0	4.85247	58.84	802.1	493.0	21.67	12.59	371
38.0	4.59492	60.01	845.3	518.9	21.58	12.58	380
40.0	4.36424	61.11	888.4	544.7	21.50	12.58	390
45.0	3.88010	63.64	995.6	609.0	21.35	12.57	412
50.0	3.49491	65.88	1102.0	672.8	21.24	12.56	433
55.0	3.18069	67.90	1208.0	736.4	21.16	12.55	452
60.0	2.91920	69.74	1313.7	799.8	21.10	12.54	471
65.0	2.69802	71.43	1419.0	863.0	21.05	12.54	490
70.0	2.50840	72.99	1524.1	926.1	21.01	12.53	507
75.0	2.34395	74.43	1629.1	989.1	20.98	12.53	524
80.0	2.19995	75.79	1733.9	1052.1	20.95	12.52	540
85.0	2.07275	77.06	1838.6	1114.9	20.93	12.52	556
90.0	1.95957	78.25	1943.2	1177.7	20.91	12.52	571
95.0	1.85819	79.38	2047.7	1240.5	20.90	12.52	586
100.0	1.76684	80.45	2152.2	1303.2	20.88	12.51	601

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

1.5 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	1.60879	82.44	2360.9	1428.5	20.86	12.51	629
120.0	1.47681	84.26	2569.5	1553.8	20.85	12.51	656
130.0	1.36490	85.93	2777.9	1678.9	20.84	12.50	682
140.0	1.26881	87.47	2986.2	1804.0	20.83	12.50	707
150.0	1.18538	88.91	3194.5	1929.0	20.82	12.50	731
160.0	1.11227	90.25	3402.6	2054.0	20.81	12.50	754
170.0	1.04767	91.51	3610.8	2179.0	20.81	12.50	777
180.0	0.99017	92.70	3818.8	2303.9	20.81	12.49	799
190.0	0.93866	93.83	4026.9	2428.8	20.80	12.49	820
200.0	0.89225	94.89	4234.9	2553.7	20.80	12.49	841
210.0	0.85021	95.91	4442.9	2678.6	20.80	12.49	861
220.0	0.81196	96.88	4650.9	2803.4	20.80	12.49	881
230.0	0.77701	97.80	4858.8	2928.3	20.79	12.49	900
240.0	0.74494	98.69	5066.7	3053.1	20.79	12.49	919
250.0	0.71542	99.53	5274.7	3177.9	20.79	12.49	938
260.0	0.68815	100.35	5482.6	3302.8	20.79	12.49	956
270.0	0.66288	101.13	5690.5	3427.6	20.79	12.49	974
280.0	0.63940	101.89	5898.4	3552.4	20.79	12.49	992
290.0	0.61753	102.62	6106.3	3677.2	20.79	12.49	1009
300.0	0.59711	103.32	6314.2	3802.0	20.79	12.49	1026
310.0	0.57799	104.01	6522.0	3926.8	20.79	12.49	1042
320.0	0.56006	104.67	6729.9	4051.6	20.79	12.48	1059
330.0	0.54321	105.31	6937.8	4176.3	20.79	12.48	1075
340.0	0.52734	105.93	7145.6	4301.1	20.79	12.48	1091
350.0	0.51238	106.53	7353.5	4425.9	20.79	12.48	1107
360.0	0.49824	107.11	7561.3	4550.7	20.79	12.48	1122
370.0	0.48486	107.68	7769.2	4675.4	20.79	12.48	1138
380.0	0.47218	108.24	7977.1	4800.2	20.79	12.48	1153
390.0	0.46014	108.78	8184.9	4925.0	20.79	12.48	1168
400.0	0.44871	109.30	8392.8	5049.7	20.78	12.48	1182
420.0	0.42746	110.32	8808.4	5299.2	20.78	12.48	1211
440.0	0.40813	111.29	9224.1	5548.8	20.78	12.48	1239
460.0	0.39048	112.21	9639.8	5798.3	20.78	12.48	1267
480.0	0.37429	113.09	10055.5	6047.8	20.78	12.48	1294
500.0	0.35939	113.94	10471.2	6297.3	20.78	12.48	1320
550.0	0.32685	115.92	11510.3	6921.0	20.78	12.48	1384
600.0	0.29972	117.73	12549.5	7544.7	20.78	12.48	1445
650.0	0.27675	119.39	13588.7	8168.4	20.78	12.48	1504
700.0	0.25705	120.94	14627.8	8792.1	20.78	12.48	1560
750.0	0.23996	122.37	15667.0	9415.8	20.78	12.48	1615
800.0	0.22501	123.71	16706.2	10039.5	20.78	12.48	1667
850.0	0.21181	124.97	17745.3	10663.2	20.78	12.48	1718
900.0	0.20007	126.16	18784.5	11286.8	20.78	12.48	1768
950.0	0.18956	127.28	19823.7	11910.5	20.78	12.48	1816
1000.0	0.18011	128.35	20862.8	12534.2	20.78	12.48	1863
1100.0	0.16377	130.33	22941.2	13781.5	20.78	12.48	1954
1200.0	0.15014	132.14	25019.5	15028.8	20.78	12.48	2040
1300.0	0.13861	133.80	27097.9	16276.1	20.78	12.48	2123
1400.0	0.12873	135.34	29176.3	17523.4	20.78	12.48	2203
1500.0	0.12016	136.78	31254.7	18770.7	20.78	12.48	2280

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

2 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.0	42.96131	5.41	60.0	13.5	6.28	6.15	348
2.5	42.61944	6.67	62.8	15.9	6.00	5.56	360
3.0	42.17935	7.91	66.2	18.8	7.56	6.87	360
3.5	41.69366	9.16	70.3	22.4	8.68	7.75	356
4.0	41.17071	10.38	74.9	26.3	9.48	8.29	349
4.5	40.60388	11.53	79.8	30.5	10.18	8.66	342
5.0	39.98181	12.64	85.1	35.0	10.93	8.97	334
5.5	39.29134	13.72	90.7	39.8	11.79	9.26	326
6.0	38.51810	14.79	96.9	45.0	12.82	9.56	317
6.5	37.64636	15.87	103.6	50.5	14.05	9.85	308
7.0	36.65906	16.96	111.0	56.4	15.53	10.15	299
7.5	35.53861	18.09	119.2	62.9	17.30	10.45	290
8.0	34.26977	19.27	128.3	70.0	19.37	10.74	281
8.5	32.84621	20.51	138.6	77.7	21.68	11.02	272
9.0	31.28146	21.82	150.0	86.1	24.04	11.27	265
9.5	29.61930	23.18	162.6	95.1	26.11	11.51	259
10.0	27.93097	24.56	176.0	104.4	27.58	11.71	255
11.0	24.75876	27.25	204.3	123.5	28.57	12.02	252
12.0	22.08485	29.72	232.7	142.1	28.14	12.22	253
13.0	19.90525	31.95	260.5	160.0	27.38	12.36	256
14.0	18.12028	33.95	287.5	177.1	26.65	12.45	260
15.0	16.63772	35.77	313.8	193.6	26.02	12.51	265
16.0	15.38820	37.43	339.6	209.6	25.49	12.56	271
17.0	14.32115	38.96	364.8	225.2	25.04	12.59	276
18.0	13.39935	40.38	389.6	240.4	24.64	12.61	282
19.0	12.59495	41.70	414.1	255.3	24.30	12.62	288
20.0	11.88673	42.94	438.3	270.0	24.01	12.63	293
22.0	10.69655	45.20	485.8	298.8	23.51	12.64	305
24.0	9.73448	47.23	532.4	326.9	23.13	12.65	316
26.0	8.93965	49.07	578.3	354.6	22.81	12.64	327
28.0	8.27111	50.75	623.7	381.9	22.56	12.64	338
30.0	7.70030	52.30	668.6	408.8	22.35	12.64	348
32.0	7.20677	53.74	713.1	435.6	22.17	12.63	358
34.0	6.77543	55.08	757.3	462.1	22.02	12.62	368
36.0	6.39492	56.33	801.2	488.4	21.90	12.62	377
38.0	6.05655	57.51	844.9	514.6	21.79	12.61	387
40.0	5.75350	58.63	888.4	540.7	21.69	12.61	396
45.0	5.11758	61.17	996.3	605.5	21.51	12.59	418
50.0	4.61171	63.43	1103.5	669.8	21.37	12.58	438
55.0	4.19902	65.46	1210.1	733.8	21.27	12.57	458
60.0	3.85554	67.31	1316.2	797.5	21.19	12.56	477
65.0	3.56495	69.00	1422.0	861.0	21.13	12.56	495
70.0	3.31574	70.57	1527.5	924.3	21.08	12.55	512
75.0	3.09955	72.02	1632.8	987.5	21.04	12.55	529
80.0	2.91016	73.38	1737.9	1050.6	21.00	12.54	545
85.0	2.74283	74.65	1842.9	1113.7	20.98	12.54	561
90.0	2.59387	75.85	1947.7	1176.6	20.95	12.53	576
95.0	2.46039	76.98	2052.4	1239.5	20.93	12.53	591
100.0	2.34008	78.05	2157.0	1302.3	20.92	12.53	605

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

2 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	2.13182	80.04	2366.0	1427.8	20.89	12.52	633
120.0	1.95778	81.86	2574.8	1553.2	20.87	12.52	660
130.0	1.81013	83.53	2783.4	1678.5	20.85	12.51	686
140.0	1.68327	85.08	2991.9	1803.7	20.84	12.51	710
150.0	1.57308	86.51	3200.3	1928.9	20.83	12.51	734
160.0	1.47646	87.86	3408.6	2053.9	20.83	12.50	757
170.0	1.39105	89.12	3616.8	2179.0	20.82	12.50	780
180.0	1.31500	90.31	3825.0	2304.0	20.81	12.50	802
190.0	1.24684	91.44	4033.1	2429.0	20.81	12.50	823
200.0	1.18542	92.50	4241.1	2553.9	20.81	12.50	844
210.0	1.12977	93.52	4449.2	2678.9	20.80	12.50	864
220.0	1.07911	94.49	4657.2	2803.8	20.80	12.50	884
230.0	1.03281	95.41	4865.2	2928.7	20.80	12.50	903
240.0	0.99031	96.29	5073.1	3053.5	20.80	12.49	922
250.0	0.95118	97.14	5281.1	3178.4	20.79	12.49	940
260.0	0.91503	97.96	5489.0	3303.3	20.79	12.49	959
270.0	0.88152	98.74	5697.0	3428.1	20.79	12.49	976
280.0	0.85039	99.50	5904.9	3552.9	20.79	12.49	994
290.0	0.82138	100.23	6112.8	3677.8	20.79	12.49	1011
300.0	0.79428	100.93	6320.7	3802.6	20.79	12.49	1028
310.0	0.76891	101.62	6528.6	3927.4	20.79	12.49	1045
320.0	0.74512	102.28	6736.4	4052.2	20.79	12.49	1061
330.0	0.72275	102.92	6944.3	4177.0	20.79	12.49	1077
340.0	0.70169	103.54	7152.2	4301.8	20.79	12.49	1093
350.0	0.68182	104.14	7360.0	4426.6	20.79	12.49	1109
360.0	0.66304	104.72	7567.9	4551.4	20.79	12.49	1124
370.0	0.64527	105.29	7775.7	4676.2	20.79	12.49	1139
380.0	0.62843	105.85	7983.6	4801.0	20.79	12.49	1155
390.0	0.61245	106.39	8191.4	4925.8	20.79	12.49	1169
400.0	0.59726	106.91	8399.3	5050.6	20.78	12.49	1184
420.0	0.56903	107.93	8815.0	5300.1	20.78	12.49	1213
440.0	0.54335	108.90	9230.7	5549.7	20.78	12.49	1241
460.0	0.51988	109.82	9646.3	5799.2	20.78	12.49	1269
480.0	0.49836	110.70	10062.0	6048.7	20.78	12.48	1295
500.0	0.47855	111.55	10477.7	6298.3	20.78	12.48	1322
550.0	0.43529	113.53	11516.8	6922.1	20.78	12.48	1386
600.0	0.39920	115.34	12555.9	7545.8	20.78	12.48	1447
650.0	0.36864	117.00	13595.1	8169.6	20.78	12.48	1505
700.0	0.34242	118.54	14634.2	8793.3	20.78	12.48	1561
750.0	0.31969	119.98	15673.3	9417.1	20.78	12.48	1616
800.0	0.29978	121.32	16712.4	10040.8	20.78	12.48	1668
850.0	0.28221	122.58	17751.6	10664.5	20.78	12.48	1719
900.0	0.26659	123.77	18790.7	11288.2	20.78	12.48	1769
950.0	0.25260	124.89	19829.8	11911.9	20.78	12.48	1817
1000.0	0.24001	125.96	20869.0	12535.6	20.78	12.48	1864
1100.0	0.21825	127.94	22947.2	13783.0	20.78	12.48	1954
1200.0	0.20010	129.75	25025.5	15030.4	20.78	12.48	2041
1300.0	0.18474	131.41	27103.9	16277.7	20.78	12.48	2124
1400.0	0.17157	132.95	29182.2	17525.1	20.78	12.48	2204
1500.0	0.16016	134.38	31260.5	18772.4	20.78	12.48	2281

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

2.5 MEGA-NEWTONS/METER SQUARED, ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.0	43.96231	5.27	71.2	-14.4	5.84	5.65	368
2.5	43.60040	6.45	73.9	16.6	5.78	5.31	383
3.0	43.17343	7.66	77.2	19.3	7.43	6.76	383
3.5	42.72341	8.89	81.2	22.7	8.53	7.69	379
4.0	42.25402	10.08	85.7	26.5	9.26	8.23	374
4.5	41.75757	11.21	90.5	30.6	9.86	8.58	367
5.0	41.22375	12.28	95.5	34.9	10.48	8.87	360
5.5	40.64209	13.31	101.0	39.4	11.16	9.14	353
6.0	40.00229	14.31	106.7	44.2	11.96	9.41	345
6.5	39.29416	15.31	112.9	49.3	12.90	9.69	338
7.0	38.50744	16.30	119.7	54.7	14.00	9.97	330
7.5	37.63190	17.31	127.0	60.5	15.27	10.25	322
8.0	36.65795	18.34	135.0	66.8	16.74	10.52	314
8.5	35.57820	19.40	143.7	73.5	18.39	10.79	306
9.0	34.39021	20.51	153.4	80.7	20.19	11.04	299
9.5	33.10069	21.65	163.9	88.4	22.06	11.28	292
10.0	31.72968	22.82	175.4	96.6	23.82	11.50	286
11.0	28.88968	25.23	200.7	114.1	26.41	11.86	278
12.0	26.19177	27.58	227.7	132.2	27.34	12.12	275
13.0	23.82907	29.77	255.0	150.1	27.23	12.30	276
14.0	21.82398	31.77	282.0	167.5	26.75	12.42	278
15.0	20.12709	33.60	308.5	184.3	26.22	12.50	282
16.0	18.67993	35.27	334.5	200.6	25.72	12.56	286
17.0	17.43313	36.82	359.9	216.5	25.28	12.60	291
18.0	16.34820	38.25	385.0	232.1	24.90	12.63	295
19.0	15.39555	39.59	409.8	247.4	24.57	12.65	300
20.0	14.55229	40.84	434.2	262.4	24.27	12.66	305
22.0	13.12599	43.13	482.2	291.7	23.78	12.68	315
24.0	11.96517	45.18	529.4	320.4	23.38	12.68	326
26.0	11.00140	47.04	575.8	348.5	23.06	12.68	336
28.0	10.18787	48.74	621.6	376.2	22.79	12.68	346
30.0	9.49149	50.30	667.0	403.6	22.57	12.67	356
32.0	8.88824	51.75	711.9	430.7	22.38	12.66	366
34.0	8.36027	53.11	756.5	457.5	22.22	12.66	375
36.0	7.89404	54.37	800.8	484.1	22.08	12.65	384
38.0	7.47909	55.56	844.9	510.6	21.96	12.64	393
40.0	7.10722	56.69	888.7	536.9	21.85	12.64	402
45.0	6.32627	59.25	997.4	602.2	21.64	12.62	424
50.0	5.70447	61.52	1105.2	666.9	21.49	12.61	444
55.0	5.19688	63.56	1212.3	731.3	21.37	12.60	463
60.0	4.77418	65.42	1318.9	795.2	21.27	12.58	482
65.0	4.41638	67.12	1425.1	859.0	21.20	12.58	500
70.0	4.10939	68.68	1530.9	922.6	21.14	12.57	517
75.0	3.84296	70.14	1636.5	986.0	21.09	12.56	533
80.0	3.60945	71.50	1741.9	1049.2	21.05	12.56	549
85.0	3.40304	72.78	1847.1	1112.4	21.02	12.55	565
90.0	3.21923	73.98	1952.1	1175.5	20.99	12.55	580
95.0	3.05446	75.11	2057.0	1238.5	20.97	12.54	595
100.0	2.90588	76.19	2161.8	1301.4	20.95	12.54	609

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

2.5 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	2.64856	78.18	2371.1	1427.2	20.92	12.53	637
120.0	2.43338	80.00	2580.1	1552.7	20.89	12.53	664
130.0	2.25072	81.67	2788.9	1678.1	20.87	12.52	689
140.0	2.09368	83.22	2997.6	1803.5	20.86	12.52	714
150.0	1.95721	84.66	3206.1	1928.7	20.85	12.52	738
160.0	1.83750	86.00	3414.5	2053.9	20.84	12.51	761
170.0	1.73162	87.26	3622.8	2179.0	20.83	12.51	783
180.0	1.63731	88.45	3831.0	2304.1	20.82	12.51	805
190.0	1.55276	89.58	4039.2	2429.1	20.82	12.51	826
200.0	1.47653	90.65	4247.3	2554.1	20.81	12.51	846
210.0	1.40745	91.66	4455.4	2679.1	20.81	12.50	867
220.0	1.34455	92.63	4663.5	2804.1	20.80	12.50	886
230.0	1.28704	93.56	4871.5	2929.0	20.80	12.50	906
240.0	1.23425	94.44	5079.5	3053.9	20.80	12.50	924
250.0	1.18563	95.29	5287.5	3178.8	20.80	12.50	943
260.0	1.14069	96.11	5495.5	3303.7	20.80	12.50	961
270.0	1.09904	96.89	5703.4	3428.6	20.79	12.50	979
280.0	1.06032	97.65	5911.3	3553.5	20.79	12.50	996
290.0	1.02424	98.38	6119.2	3678.3	20.79	12.50	1013
300.0	0.99054	99.08	6327.1	3803.2	20.79	12.49	1030
310.0	0.95898	99.76	6535.0	3928.0	20.79	12.49	1047
320.0	0.92937	100.42	6742.9	4052.9	20.79	12.49	1063
330.0	0.90154	101.06	6950.8	4177.7	20.79	12.49	1079
340.0	0.87533	101.68	7158.7	4302.5	20.79	12.49	1095
350.0	0.85059	102.29	7366.6	4427.3	20.79	12.49	1111
360.0	0.82722	102.87	7574.4	4552.2	20.79	12.49	1126
370.0	0.80510	103.44	7782.3	4677.0	20.79	12.49	1141
380.0	0.78413	103.99	7990.1	4801.8	20.79	12.49	1156
390.0	0.76422	104.53	8198.0	4926.6	20.78	12.49	1171
400.0	0.74530	105.06	8405.8	5051.4	20.78	12.49	1186
420.0	0.71014	106.08	8821.5	5301.0	20.78	12.49	1215
440.0	0.67815	107.04	9237.2	5550.5	20.78	12.49	1243
460.0	0.64891	107.97	9652.8	5800.1	20.78	12.49	1270
480.0	0.62209	108.85	10068.5	6049.7	20.78	12.49	1297
500.0	0.59740	109.70	10484.1	6299.2	20.78	12.49	1323
550.0	0.54347	111.68	11523.3	6923.1	20.78	12.49	1387
600.0	0.49847	113.49	12562.4	7546.9	20.78	12.49	1448
650.0	0.46036	115.15	13601.5	8170.7	20.78	12.48	1506
700.0	0.42765	116.69	14640.5	8794.5	20.78	12.48	1563
750.0	0.39929	118.13	15679.6	9418.3	20.78	12.48	1617
800.0	0.37445	119.47	16718.7	10042.1	20.78	12.48	1669
850.0	0.35252	120.73	17757.8	10665.8	20.78	12.48	1720
900.0	0.33302	121.91	18796.9	11289.6	20.78	12.48	1770
950.0	0.31556	123.04	19836.0	11913.3	20.78	12.48	1818
1000.0	0.29984	124.10	20875.1	12537.0	20.78	12.48	1865
1100.0	0.27267	126.08	22953.3	13784.5	20.78	12.48	1955
1200.0	0.25002	127.89	25031.5	15031.9	20.78	12.48	2042
1300.0	0.23084	129.56	27109.8	16279.4	20.78	12.48	2125
1400.0	0.21439	131.10	29188.0	17526.8	20.78	12.48	2204
1500.0	0.20013	132.53	31266.3	18774.2	20.78	12.48	2281

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

3 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.0	44.87799	5.10	82.2	15.3	5.51	5.24	386
2.5	44.48503	6.24	84.7	17.3	5.65	5.13	404
3.0	44.05971	7.43	88.0	19.9	7.37	6.70	404
3.5	43.63152	8.66	92.0	23.2	8.45	7.66	400
4.0	43.19848	9.83	96.4	26.9	9.13	8.20	395
4.5	42.75077	10.94	101.1	30.9	9.65	8.54	390
5.0	42.27785	11.98	106.0	35.1	10.17	8.80	383
5.5	41.77007	12.98	111.2	39.4	10.73	9.05	377
6.0	41.21884	13.94	116.8	44.0	11.39	9.30	370
6.5	40.61630	14.88	122.7	48.8	12.16	9.55	363
7.0	39.95511	15.81	129.0	53.9	13.04	9.82	356
7.5	39.22832	16.74	135.7	59.2	14.04	10.08	349
8.0	38.42950	17.69	143.0	65.0	15.19	10.34	342
8.5	37.55311	18.64	150.9	71.0	16.47	10.60	335
9.0	36.59546	19.62	159.5	77.5	17.87	10.85	328
9.5	35.55610	20.63	168.8	84.4	19.38	11.09	321
10.0	34.43974	21.66	178.9	91.8	20.93	11.32	315
11.0	32.03110	23.80	201.3	107.6	23.80	11.70	305
12.0	29.54618	25.96	226.2	124.6	25.74	12.00	299
13.0	27.18990	28.06	252.4	142.1	26.53	12.22	296
14.0	25.08211	30.03	279.0	159.4	26.55	12.37	297
15.0	23.24508	31.85	305.4	176.3	26.24	12.48	299
16.0	21.65273	33.53	331.4	192.9	25.83	12.55	302
17.0	20.26716	35.09	357.1	209.0	25.43	12.61	305
18.0	19.05300	36.53	382.3	224.8	25.06	12.64	309
19.0	17.98088	37.87	407.2	240.3	24.73	12.67	313
20.0	17.02730	39.13	431.8	255.6	24.44	12.69	318
22.0	15.40442	41.44	480.1	285.4	23.95	12.71	327
24.0	14.07422	43.51	527.6	314.5	23.56	12.71	336
26.0	12.96342	45.38	574.4	343.0	23.23	12.71	346
28.0	12.02142	47.09	620.6	371.0	22.96	12.71	355
30.0	11.21209	48.67	666.3	398.7	22.73	12.70	364
32.0	10.50894	50.13	711.6	426.1	22.54	12.70	374
34.0	9.89209	51.49	756.5	453.2	22.37	12.69	383
36.0	9.34634	52.76	801.1	480.1	22.22	12.68	392
38.0	8.85987	53.96	845.4	506.8	22.10	12.67	400
40.0	8.42337	55.09	889.5	533.3	21.98	12.66	409
45.0	7.50515	57.67	998.8	599.0	21.76	12.65	430
50.0	6.77278	59.95	1107.1	664.2	21.59	12.63	450
55.0	6.17417	62.00	1214.7	728.8	21.45	12.62	469
60.0	5.67518	63.86	1321.7	793.1	21.35	12.60	487
65.0	5.25247	65.57	1428.2	857.1	21.27	12.59	505
70.0	4.88955	67.14	1534.4	920.8	21.20	12.59	522
75.0	4.57440	68.60	1640.3	984.4	21.15	12.58	538
80.0	4.29803	69.97	1745.9	1047.9	21.10	12.57	554
85.0	4.05362	71.24	1851.3	1111.2	21.06	12.57	569
90.0	3.83587	72.45	1956.5	1174.4	21.03	12.56	584
95.0	3.64059	73.58	2061.6	1237.5	21.00	12.55	599
100.0	3.46443	74.66	2166.5	1300.6	20.98	12.55	613

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

3 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	3.15918	76.66	2376.1	1426.5	20.94	12.54	641
120.0	2.90374	78.48	2585.4	1552.2	20.91	12.54	667
130.0	2.68677	80.15	2794.4	1677.7	20.89	12.53	693
140.0	2.50014	81.70	3003.2	1803.2	20.87	12.53	717
150.0	2.33786	83.14	3211.8	1928.5	20.86	12.52	741
160.0	2.19544	84.48	3420.3	2053.8	20.85	12.52	764
170.0	2.06944	85.75	3628.7	2179.0	20.84	12.52	786
180.0	1.95715	86.94	3837.0	2304.2	20.83	12.52	808
190.0	1.85645	88.06	4045.3	2429.3	20.82	12.51	829
200.0	1.76563	89.13	4253.5	2554.3	20.82	12.51	849
210.0	1.68330	90.15	4461.6	2679.4	20.81	12.51	869
220.0	1.60832	91.12	4669.7	2804.4	20.81	12.51	889
230.0	1.53974	92.04	4877.8	2929.4	20.81	12.51	908
240.0	1.47678	92.93	5085.8	3054.3	20.80	12.51	927
250.0	1.41876	93.78	5293.9	3179.3	20.80	12.50	945
260.0	1.36514	94.59	5501.8	3304.2	20.80	12.50	963
270.0	1.31543	95.38	5709.8	3429.1	20.80	12.50	981
280.0	1.26922	96.13	5917.8	3554.0	20.79	12.50	999
290.0	1.22614	96.86	6125.7	3678.9	20.79	12.50	1016
300.0	1.18589	97.57	6333.6	3803.8	20.79	12.50	1032
310.0	1.14820	98.25	6541.5	3928.7	20.79	12.50	1049
320.0	1.11284	98.91	6749.4	4053.5	20.79	12.50	1065
330.0	1.07959	99.55	6957.3	4178.4	20.79	12.50	1081
340.0	1.04826	100.17	7165.2	4303.2	20.79	12.50	1097
350.0	1.01871	100.77	7373.0	4428.1	20.79	12.50	1113
360.0	0.99078	101.36	7580.9	4552.9	20.79	12.50	1128
370.0	0.96433	101.93	7788.8	4677.7	20.79	12.50	1143
380.0	0.93927	102.48	7996.6	4802.6	20.79	12.49	1158
390.0	0.91547	103.02	8204.5	4927.4	20.79	12.49	1173
400.0	0.89285	103.55	8412.3	5052.2	20.78	12.49	1188
420.0	0.85080	104.56	8828.0	5301.8	20.78	12.49	1216
440.0	0.81254	105.53	9243.7	5551.4	20.78	12.49	1244
460.0	0.77757	106.45	9659.3	5801.0	20.78	12.49	1272
480.0	0.74548	107.34	10075.0	6050.6	20.78	12.49	1299
500.0	0.71594	108.18	10490.6	6300.2	20.78	12.49	1325
550.0	0.65140	110.17	11529.7	6924.1	20.78	12.49	1388
600.0	0.59753	111.97	12568.8	7548.0	20.78	12.49	1449
650.0	0.55189	113.64	13607.8	8171.9	20.78	12.49	1508
700.0	0.51273	115.18	14646.9	8795.7	20.78	12.49	1564
750.0	0.47876	116.61	15685.9	9419.5	20.78	12.49	1618
800.0	0.44900	117.95	16725.0	10043.3	20.78	12.49	1670
850.0	0.42273	119.21	17764.0	10667.1	20.78	12.49	1721
900.0	0.39936	120.40	18803.1	11290.9	20.78	12.48	1771
950.0	0.37844	121.52	19842.2	11914.7	20.78	12.48	1819
1000.0	0.35960	122.59	20881.2	12538.5	20.78	12.48	1866
1100.0	0.32704	124.57	22959.4	13786.0	20.78	12.48	1956
1200.0	0.29989	126.38	25037.5	15033.5	20.78	12.48	2042
1300.0	0.27689	128.04	27115.7	16281.0	20.78	12.48	2125
1400.0	0.25718	129.58	29193.9	17528.5	20.78	12.48	2205
1500.0	0.24008	131.02	31272.1	18775.9	20.78	12.48	2282

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

4 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	46.05639	5.81	105.7	18.9	5.65	4.94	441
3.0	45.60964	7.01	109.0	21.3	7.43	6.70	439
3.5	45.19901	8.24	113.0	24.5	8.45	7.70	436
4.0	44.80833	9.41	117.4	28.1	9.02	8.21	432
4.5	44.42182	10.49	122.0	32.0	9.42	8.50	428
5.0	44.02669	11.51	126.8	36.0	9.79	8.72	422
5.5	43.61298	12.46	131.8	40.1	10.20	8.92	417
6.0	43.17289	13.36	137.0	44.4	10.67	9.12	412
6.5	42.70016	14.24	142.5	48.8	11.23	9.34	406
7.0	42.18961	15.09	148.3	53.4	11.87	9.57	400
7.5	41.63685	15.94	154.4	58.3	12.59	9.81	394
8.0	41.03807	16.78	160.9	63.4	13.40	10.06	389
8.5	40.39003	17.61	167.8	68.8	14.30	10.30	383
9.0	39.69012	18.46	175.2	74.4	15.28	10.54	377
9.5	38.93661	19.31	183.1	80.4	16.34	10.78	371
10.0	38.12897	20.18	191.5	86.6	17.46	11.00	365
11.0	36.35843	21.95	210.2	100.1	19.82	11.41	355
12.0	34.41813	23.78	231.1	114.9	22.08	11.76	345
13.0	32.39146	25.62	254.2	130.7	23.90	12.04	339
14.0	30.38614	27.44	278.7	147.1	25.05	12.25	335
15.0	28.49365	29.19	304.1	163.7	25.55	12.41	333
16.0	26.76353	30.84	329.7	180.2	25.63	12.52	333
17.0	25.20734	32.39	355.2	196.5	25.47	12.60	335
18.0	23.81523	33.84	380.6	212.6	25.22	12.66	337
19.0	22.56916	35.19	405.7	228.4	24.94	12.70	340
20.0	21.44997	36.47	430.5	244.0	24.67	12.73	343
22.0	19.52454	38.79	479.3	274.4	24.18	12.76	351
24.0	17.92748	40.88	527.2	304.1	23.78	12.77	358
26.0	16.58029	42.77	574.5	333.2	23.45	12.77	366
28.0	15.42767	44.50	621.1	361.8	23.17	12.77	374
30.0	14.42969	46.09	667.2	390.0	22.94	12.76	383
32.0	13.55682	47.56	712.9	417.8	22.74	12.75	391
34.0	12.78666	48.94	758.2	445.3	22.57	12.75	399
36.0	12.10191	50.22	803.2	472.6	22.42	12.74	407
38.0	11.48897	51.43	847.9	499.7	22.29	12.73	415
40.0	10.93700	52.57	892.3	526.6	22.17	12.72	423
45.0	9.77011	55.17	1002.5	593.1	21.93	12.69	443
50.0	8.83425	57.47	1111.7	658.9	21.74	12.67	462
55.0	8.06626	59.53	1220.0	724.1	21.60	12.66	480
60.0	7.42414	61.41	1327.7	788.9	21.48	12.64	498
65.0	6.87890	63.12	1434.8	853.3	21.38	12.63	515
70.0	6.40988	64.70	1541.6	917.5	21.30	12.62	531
75.0	6.00193	66.17	1647.9	981.4	21.24	12.61	547
80.0	5.64370	67.54	1754.0	1045.2	21.18	12.60	563
85.0	5.32650	68.82	1859.8	1108.8	21.14	12.59	578
90.0	5.04359	70.03	1965.3	1172.2	21.10	12.59	593
95.0	4.78963	71.17	2070.7	1235.6	21.06	12.58	607
100.0	4.56034	72.25	2176.0	1298.8	21.04	12.57	621

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

4 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	4.16253	74.25	2386.1	1425.1	20.99	12.56	649
120.0	3.82916	76.08	2595.8	1551.1	20.95	12.56	675
130.0	3.54564	77.75	2805.1	1677.0	20.92	12.55	700
140.0	3.30148	79.30	3014.2	1802.6	20.90	12.54	724
150.0	3.08897	80.74	3223.2	1928.2	20.88	12.54	748
160.0	2.90230	82.09	3431.9	2053.6	20.87	12.54	770
170.0	2.73700	83.35	3640.5	2179.0	20.85	12.53	792
180.0	2.58959	84.55	3849.0	2304.3	20.84	12.53	814
190.0	2.45730	85.67	4057.4	2429.5	20.84	12.53	835
200.0	2.33790	86.74	4265.7	2554.7	20.83	12.52	855
210.0	2.22960	87.76	4474.0	2679.9	20.82	12.52	875
220.0	2.13091	88.73	4682.2	2805.0	20.82	12.52	894
230.0	2.04061	89.65	4890.3	2930.0	20.81	12.52	913
240.0	1.95766	90.54	5098.4	3055.1	20.81	12.52	932
250.0	1.88120	91.39	5306.5	3180.1	20.81	12.51	950
260.0	1.81050	92.20	5514.5	3305.1	20.80	12.51	968
270.0	1.74492	92.99	5722.5	3430.1	20.80	12.51	986
280.0	1.68394	93.74	5930.5	3555.1	20.80	12.51	1003
290.0	1.62707	94.47	6138.5	3680.0	20.80	12.51	1020
300.0	1.57393	95.18	6346.4	3805.0	20.79	12.51	1037
310.0	1.52415	95.86	6554.4	3929.9	20.79	12.51	1053
320.0	1.47742	96.52	6762.3	4054.8	20.79	12.51	1070
330.0	1.43347	97.16	6970.2	4179.7	20.79	12.51	1086
340.0	1.39207	97.78	7178.1	4304.6	20.79	12.51	1101
350.0	1.35299	98.38	7386.0	4429.5	20.79	12.50	1117
360.0	1.31604	98.97	7593.9	4554.4	20.79	12.50	1132
370.0	1.28106	99.54	7801.7	4679.2	20.79	12.50	1147
380.0	1.24789	100.09	8009.6	4804.1	20.79	12.50	1162
390.0	1.21640	100.63	8217.4	4928.9	20.79	12.50	1177
400.0	1.18646	101.16	8425.3	5053.8	20.78	12.50	1191
420.0	1.13078	102.17	8841.0	5303.5	20.78	12.50	1220
440.0	1.08010	103.14	9256.6	5553.2	20.78	12.50	1248
460.0	1.03377	104.06	9672.3	5802.8	20.78	12.50	1275
480.0	0.99125	104.95	10087.9	6052.5	20.78	12.50	1302
500.0	0.95208	105.80	10503.5	6302.1	20.78	12.50	1328
550.0	0.86650	107.78	11542.6	6926.2	20.78	12.50	1391
600.0	0.79502	109.59	12581.6	7550.2	20.78	12.49	1452
650.0	0.73444	111.25	13620.6	8174.1	20.78	12.49	1510
700.0	0.68244	112.79	14659.6	8798.0	20.78	12.49	1566
750.0	0.63731	114.22	15698.5	9422.0	20.78	12.49	1620
800.0	0.59777	115.56	16737.5	10045.9	20.78	12.49	1673
850.0	0.56286	116.82	17776.5	10669.7	20.78	12.49	1723
900.0	0.53179	118.01	18815.5	11293.6	20.78	12.49	1773
950.0	0.50398	119.13	19854.5	11917.4	20.78	12.49	1821
1000.0	0.47893	120.20	20893.5	12541.3	20.78	12.49	1867
1100.0	0.43562	122.18	22971.5	13789.0	20.78	12.49	1958
1200.0	0.39949	123.99	25049.5	15036.6	20.78	12.49	2044
1300.0	0.36890	125.65	27127.6	16284.2	20.78	12.49	2127
1400.0	0.34266	127.19	29205.7	17531.8	20.78	12.49	2206
1500.0	0.31990	128.63	31283.8	18779.4	20.78	12.49	2283

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

5 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	47.45441	5.35	125.9	20.6	5.99	4.98	474
3.0	46.95932	6.60	129.4	22.9	7.70	6.84	470
3.5	46.54311	7.87	133.5	26.1	8.62	7.84	467
4.0	46.17043	9.05	137.9	29.6	9.06	8.30	464
4.5	45.81759	10.13	142.5	33.4	9.34	8.53	460
5.0	45.46831	11.13	147.3	37.3	9.59	8.69	455
5.5	45.11115	12.06	152.1	41.3	9.88	8.84	451
6.0	44.73787	12.93	157.2	45.4	10.24	9.00	446
6.5	44.34236	13.77	162.4	49.6	10.66	9.18	441
7.0	43.91998	14.58	167.8	54.0	11.16	9.38	437
7.5	43.46707	15.37	173.6	58.5	11.73	9.60	432
8.0	42.98074	16.14	179.6	63.3	12.37	9.83	427
8.5	42.45865	16.91	186.0	68.2	13.08	10.06	422
9.0	41.89893	17.68	192.7	73.3	13.85	10.29	417
9.5	41.30024	18.45	199.8	78.7	14.67	10.52	412
10.0	40.66175	19.23	207.4	84.4	15.55	10.74	407
11.0	39.26562	20.80	223.8	96.5	17.43	11.16	397
12.0	37.72051	22.40	242.2	109.7	19.39	11.53	388
13.0	36.05568	24.02	262.6	123.9	21.26	11.85	380
14.0	34.32152	25.66	284.7	139.0	22.84	12.11	373
15.0	32.58174	27.28	308.1	154.7	23.99	12.31	369
16.0	30.89699	28.85	332.5	170.7	24.68	12.46	366
17.0	29.31035	30.36	357.4	186.8	24.99	12.57	365
18.0	27.84324	31.79	382.4	202.8	25.04	12.65	366
19.0	26.50006	33.14	407.4	218.7	24.94	12.71	367
20.0	25.27510	34.42	432.2	234.4	24.76	12.75	369
22.0	23.13780	36.76	481.4	265.3	24.34	12.80	374
24.0	21.34357	38.86	529.6	295.4	23.94	12.82	381
26.0	19.81739	40.76	577.2	324.9	23.60	12.83	387
28.0	18.50252	42.50	624.1	353.8	23.31	12.83	394
30.0	17.35692	44.10	670.5	382.4	23.07	12.82	401
32.0	16.34911	45.58	716.4	410.6	22.87	12.81	409
34.0	15.45516	46.96	762.0	438.4	22.69	12.80	416
36.0	14.65647	48.25	807.2	466.0	22.54	12.79	423
38.0	13.93837	49.47	852.1	493.4	22.41	12.78	431
40.0	13.28912	50.61	896.8	520.6	22.29	12.76	438
45.0	11.90859	53.23	1007.6	587.7	22.04	12.74	456
50.0	10.79377	55.54	1117.3	654.1	21.85	12.72	474
55.0	9.87412	57.61	1226.2	719.8	21.70	12.69	492
60.0	9.10209	59.49	1334.4	785.0	21.57	12.68	509
65.0	8.44446	61.22	1442.0	849.8	21.47	12.66	525
70.0	7.87729	62.81	1549.1	914.3	21.39	12.65	541
75.0	7.38293	64.28	1655.8	978.6	21.31	12.64	557
80.0	6.94805	65.65	1762.3	1042.6	21.25	12.63	572
85.0	6.56240	66.94	1868.4	1106.5	21.20	12.62	587
90.0	6.21799	68.15	1974.3	1170.2	21.16	12.61	602
95.0	5.90845	69.29	2080.0	1233.7	21.12	12.60	616
100.0	5.62869	70.37	2185.5	1297.2	21.09	12.60	630

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

5 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	5.14268	72.38	2396.1	1423.8	21.03	12.59	656
120.0	4.73475	74.21	2606.1	1550.1	20.99	12.58	682
130.0	4.38735	75.89	2815.8	1676.2	20.95	12.57	707
140.0	4.08784	77.44	3025.2	1802.1	20.93	12.56	731
150.0	3.82688	78.88	3234.4	1927.8	20.91	12.56	754
160.0	3.59744	80.23	3443.4	2053.4	20.89	12.55	777
170.0	3.39410	81.50	3652.1	2179.0	20.87	12.55	798
180.0	3.21262	82.69	3860.8	2304.4	20.86	12.54	820
190.0	3.04964	83.82	4069.3	2429.8	20.85	12.54	840
200.0	2.90246	84.89	4277.8	2555.1	20.84	12.54	861
210.0	2.76888	85.90	4486.2	2680.3	20.83	12.53	880
220.0	2.64708	86.87	4694.5	2805.5	20.83	12.53	900
230.0	2.53558	87.80	4902.7	2930.7	20.82	12.53	919
240.0	2.43311	88.68	5110.9	3055.8	20.82	12.53	937
250.0	2.33862	89.53	5319.0	3180.9	20.81	12.52	955
260.0	2.25120	90.35	5527.1	3306.0	20.81	12.52	973
270.0	2.17010	91.14	5735.2	3431.1	20.81	12.52	991
280.0	2.09464	91.89	5943.2	3556.1	20.80	12.52	1008
290.0	2.02426	92.62	6151.2	3681.1	20.80	12.52	1025
300.0	1.95846	93.33	6359.2	3806.1	20.80	12.52	1041
310.0	1.89681	94.01	6567.1	3931.1	20.80	12.52	1058
320.0	1.83892	94.67	6775.1	4056.0	20.79	12.52	1074
330.0	1.78447	95.31	6983.0	4181.0	20.79	12.51	1090
340.0	1.73315	95.93	7190.9	4305.9	20.79	12.51	1105
350.0	1.68470	96.53	7398.8	4430.9	20.79	12.51	1121
360.0	1.63888	97.12	7606.7	4555.8	20.79	12.51	1136
370.0	1.59550	97.69	7814.6	4680.7	20.79	12.51	1151
380.0	1.55435	98.24	8022.5	4805.6	20.79	12.51	1166
390.0	1.51527	98.78	8230.3	4930.5	20.79	12.51	1181
400.0	1.47811	99.31	8438.2	5055.4	20.79	12.51	1195
420.0	1.40900	100.32	8853.9	5305.1	20.78	12.51	1223
440.0	1.34606	101.29	9269.5	5554.9	20.78	12.51	1251
460.0	1.28851	102.21	9685.2	5804.6	20.78	12.51	1278
480.0	1.23567	103.10	10100.8	6054.3	20.78	12.50	1305
500.0	1.18700	103.95	10516.4	6304.0	20.78	12.50	1331
550.0	1.08059	105.93	11555.4	6928.2	20.78	12.50	1394
600.0	0.99168	107.73	12594.4	7552.3	20.78	12.50	1455
650.0	0.91629	109.40	13633.3	8176.4	20.78	12.50	1513
700.0	0.85155	110.94	14672.2	8800.4	20.78	12.50	1569
750.0	0.79535	112.37	15711.1	9424.4	20.78	12.50	1623
800.0	0.74610	113.71	16750.0	10048.4	20.78	12.50	1675
850.0	0.70260	114.97	17789.0	10672.3	20.78	12.49	1725
900.0	0.66389	116.16	18827.9	11296.3	20.78	12.49	1775
950.0	0.62922	117.28	19866.8	11920.2	20.78	12.49	1822
1000.0	0.59799	118.35	20905.7	12544.1	20.78	12.49	1869
1100.0	0.54398	120.33	22983.6	13791.9	20.78	12.49	1959
1200.0	0.49892	122.14	25061.5	15039.7	20.78	12.49	2045
1300.0	0.46076	123.80	27139.5	16287.4	20.78	12.49	2128
1400.0	0.42801	125.34	29217.4	17535.2	20.78	12.49	2207
1500.0	0.39961	126.77	31295.4	18782.9	20.78	12.49	2284

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

6 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
3.0	48.17717	6.19	149.2	24.6	8.18	7.12	496
3.5	47.73823	7.51	153.5	27.8	8.92	8.06	493
4.0	47.36798	8.73	158.0	31.4	9.22	8.45	490
4.5	47.03259	9.82	162.7	35.1	9.37	8.62	487
5.0	46.71131	10.82	167.4	38.9	9.51	8.71	484
5.5	46.39059	11.73	172.2	42.9	9.70	8.80	480
6.0	46.06119	12.58	177.1	46.8	9.95	8.91	476
6.5	45.71662	13.39	182.2	50.9	10.28	9.06	472
7.0	45.35218	14.17	187.4	55.1	10.68	9.23	468
7.5	44.96441	14.92	192.9	59.4	11.15	9.42	464
8.0	44.55067	15.66	198.6	63.9	11.68	9.63	460
8.5	44.10899	16.38	204.5	68.5	12.27	9.84	455
9.0	43.63785	17.10	210.8	73.3	12.91	10.07	451
9.5	43.13617	17.82	217.5	78.4	13.60	10.29	447
10.0	42.60321	18.54	224.4	83.6	14.33	10.51	443
11.0	41.44259	19.97	239.5	94.8	15.90	10.93	434
12.0	40.15892	21.43	256.3	106.9	17.57	11.32	425
13.0	38.76435	22.90	274.7	119.9	19.26	11.66	417
14.0	37.28242	24.39	294.8	133.8	20.85	11.95	410
15.0	35.74806	25.88	316.3	148.5	22.23	12.18	404
16.0	34.20322	27.35	339.1	163.7	23.30	12.37	399
17.0	32.68908	28.78	362.8	179.2	24.02	12.51	396
18.0	31.23839	30.17	387.1	195.0	24.44	12.62	395
19.0	29.87177	31.50	411.6	210.7	24.62	12.70	394
20.0	28.59837	32.76	436.2	226.4	24.64	12.76	395
22.0	26.32945	35.10	485.3	257.4	24.41	12.83	398
24.0	24.39236	37.21	533.8	287.8	24.07	12.86	403
26.0	22.72881	39.12	581.6	317.6	23.74	12.88	408
28.0	21.28630	40.87	628.8	346.9	23.44	12.88	414
30.0	20.02301	42.48	675.4	375.8	23.19	12.87	420
32.0	18.90658	43.97	721.6	404.2	22.97	12.86	427
34.0	17.91204	45.35	767.3	432.3	22.79	12.85	433
36.0	17.01989	46.65	812.7	460.2	22.63	12.84	440
38.0	16.21470	47.87	857.8	487.8	22.49	12.82	447
40.0	15.48409	49.02	902.7	515.2	22.37	12.81	454
45.0	13.92196	51.64	1013.9	582.9	22.12	12.78	471
50.0	12.65170	53.96	1124.0	649.7	21.92	12.75	487
55.0	11.59790	56.04	1233.2	715.8	21.77	12.73	504
60.0	10.70924	57.93	1341.7	781.4	21.64	12.71	520
65.0	9.94947	59.66	1449.6	846.6	21.54	12.69	536
70.0	9.29225	61.25	1557.1	911.4	21.45	12.68	552
75.0	8.71796	62.73	1664.2	975.9	21.37	12.66	567
80.0	8.21172	64.11	1770.9	1040.2	21.31	12.65	582
85.0	7.76199	65.40	1877.3	1104.3	21.26	12.64	596
90.0	7.35973	66.61	1983.4	1168.2	21.21	12.63	610
95.0	6.99772	67.76	2089.4	1231.9	21.17	12.63	624
100.0	6.67016	68.84	2195.1	1295.5	21.13	12.62	638

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

6 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	6.10025	70.85	2406.1	1422.5	21.07	12.60	664
120.0	5.62108	72.68	2616.5	1549.1	21.02	12.59	690
130.0	5.21242	74.36	2826.5	1675.4	20.98	12.59	714
140.0	4.85965	75.92	3036.2	1801.5	20.95	12.58	738
150.0	4.55197	77.36	3245.6	1927.4	20.93	12.57	761
160.0	4.28119	78.71	3454.7	2053.2	20.91	12.57	783
170.0	4.04101	79.98	3663.7	2178.9	20.89	12.56	804
180.0	3.82649	81.17	3872.5	2304.5	20.87	12.56	826
190.0	3.63371	82.30	4081.2	2430.0	20.86	12.55	846
200.0	3.45950	83.37	4289.8	2555.4	20.85	12.55	866
210.0	3.30130	84.39	4498.3	2680.7	20.84	12.54	886
220.0	3.15698	85.36	4706.7	2806.0	20.84	12.54	905
230.0	3.02479	86.28	4915.0	2931.3	20.83	12.54	924
240.0	2.90325	87.17	5123.2	3056.5	20.82	12.54	942
250.0	2.79112	88.02	5331.4	3181.7	20.82	12.53	960
260.0	2.68736	88.84	5539.6	3306.9	20.81	12.53	978
270.0	2.59104	89.62	5747.7	3432.0	20.81	12.53	995
280.0	2.50141	90.38	5955.8	3557.1	20.81	12.53	1012
290.0	2.41777	91.11	6163.8	3682.1	20.80	12.53	1029
300.0	2.33956	91.81	6371.9	3807.2	20.80	12.53	1046
310.0	2.26625	92.50	6579.8	3932.2	20.80	12.52	1062
320.0	2.19740	93.16	6787.8	4057.2	20.80	12.52	1078
330.0	2.13262	93.80	6995.8	4182.2	20.79	12.52	1094
340.0	2.07155	94.42	7203.7	4307.2	20.79	12.52	1109
350.0	2.01388	95.02	7411.6	4432.2	20.79	12.52	1125
360.0	1.95934	95.61	7619.5	4557.2	20.79	12.52	1140
370.0	1.90767	96.17	7827.4	4682.1	20.79	12.52	1155
380.0	1.85866	96.73	8035.3	4807.1	20.79	12.52	1170
390.0	1.81211	97.27	8243.2	4932.0	20.79	12.52	1184
400.0	1.76783	97.80	8451.0	5056.9	20.79	12.52	1199
420.0	1.68547	98.81	8866.7	5306.8	20.78	12.51	1227
440.0	1.61044	99.78	9282.4	5556.6	20.78	12.51	1255
460.0	1.54180	100.70	9698.0	5806.4	20.78	12.51	1282
480.0	1.47878	101.58	10113.6	6056.1	20.78	12.51	1308
500.0	1.42071	102.43	10529.2	6305.9	20.78	12.51	1334
550.0	1.29369	104.41	11568.2	6930.2	20.78	12.51	1397
600.0	1.18751	106.22	12607.1	7554.4	20.78	12.51	1457
650.0	1.09744	107.88	13646.0	8178.6	20.78	12.50	1515
700.0	1.02006	109.42	14684.9	8802.7	20.78	12.50	1571
750.0	0.95287	110.86	15723.7	9426.8	20.78	12.50	1625
800.0	0.89399	112.20	16762.6	10050.9	20.78	12.50	1677
850.0	0.84195	113.46	17801.4	10674.9	20.78	12.50	1727
900.0	0.79564	114.65	18840.3	11298.9	20.78	12.50	1777
950.0	0.75415	115.77	19879.1	11922.9	20.78	12.50	1824
1000.0	0.71678	116.83	20918.0	12546.9	20.78	12.50	1871
1100.0	0.65213	118.82	22995.7	13794.9	20.78	12.50	1961
1200.0	0.59818	120.62	25073.5	15042.8	20.78	12.49	2047
1300.0	0.55247	122.29	27151.3	16290.7	20.78	12.49	2129
1400.0	0.51325	123.83	29229.2	17538.5	20.78	12.49	2209
1500.0	0.47922	125.26	31307.0	18786.3	20.78	12.49	2285

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

7 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
3.0	49.30507	5.75	168.4	26.4	8.91	7.53	520
3.5	48.82807	7.16	173.0	29.6	9.35	8.38	516
4.0	48.44857	8.42	177.7	33.2	9.47	8.67	514
4.5	48.11961	9.54	182.4	37.0	9.48	8.74	512
5.0	47.81487	10.54	187.2	40.8	9.51	8.76	509
5.5	47.51814	11.45	191.9	44.6	9.60	8.79	506
6.0	47.21886	12.29	196.8	48.5	9.77	8.86	502
6.5	46.90984	13.08	201.7	52.5	10.01	8.96	499
7.0	46.58610	13.84	206.8	56.5	10.34	9.10	495
7.5	46.24404	14.56	212.1	60.7	10.72	9.27	492
8.0	45.88109	15.27	217.5	65.0	11.17	9.46	488
8.5	45.49536	15.96	223.3	69.4	11.68	9.66	485
9.0	45.08546	16.64	229.2	74.0	12.23	9.87	481
9.5	44.65043	17.32	235.5	78.7	12.83	10.08	478
10.0	44.18962	17.99	242.1	83.7	13.46	10.30	474
11.0	43.18964	19.34	256.2	94.1	14.83	10.72	466
12.0	42.08636	20.69	271.8	105.4	16.29	11.12	459
13.0	40.88597	22.06	288.8	117.6	17.80	11.47	451
14.0	39.60101	23.43	307.4	130.6	19.29	11.78	444
15.0	38.25114	24.81	327.3	144.3	20.67	12.05	437
16.0	36.86242	26.18	348.6	158.7	21.88	12.26	431
17.0	35.46463	27.54	371.0	173.6	22.84	12.43	427
18.0	34.08701	28.87	394.2	188.9	23.54	12.57	424
19.0	32.75401	30.15	418.0	204.3	24.00	12.67	422
20.0	31.48286	31.39	442.2	219.8	24.25	12.75	421
22.0	29.15880	33.71	490.8	250.7	24.33	12.85	421
24.0	27.12928	35.82	539.3	281.3	24.13	12.90	424
26.0	25.36369	37.74	587.3	311.3	23.85	12.92	429
28.0	23.82075	39.50	634.7	340.8	23.56	12.92	434
30.0	22.46237	41.11	681.5	369.9	23.30	12.92	439
32.0	21.25699	42.61	727.9	398.6	23.07	12.91	445
34.0	20.17940	44.00	773.8	426.9	22.87	12.90	451
36.0	19.20960	45.30	819.4	455.0	22.70	12.88	457
38.0	18.33161	46.53	864.6	482.8	22.56	12.87	463
40.0	17.53257	47.68	909.6	510.4	22.43	12.86	469
45.0	15.81592	50.31	1021.1	578.5	22.17	12.82	485
50.0	14.41115	52.63	1131.4	645.7	21.97	12.79	501
55.0	13.23941	54.72	1240.9	712.2	21.82	12.77	516
60.0	12.24675	56.61	1349.7	778.1	21.69	12.74	532
65.0	11.39480	58.34	1457.9	843.5	21.59	12.72	547
70.0	10.65546	59.94	1565.6	908.6	21.50	12.71	562
75.0	10.00766	61.42	1672.9	973.4	21.42	12.69	577
80.0	9.43531	62.80	1779.8	1037.9	21.36	12.68	591
85.0	8.92585	64.09	1886.4	1102.2	21.30	12.67	605
90.0	8.46939	65.31	1992.8	1166.3	21.25	12.66	619
95.0	8.05801	66.46	2098.9	1230.2	21.20	12.65	633
100.0	7.68528	67.54	2204.8	1294.0	21.17	12.64	646

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

7 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	7.03573	69.56	2416.2	1421.2	21.10	12.62	672
120.0	6.48859	71.39	2626.9	1548.1	21.05	12.61	697
130.0	6.02123	73.07	2837.2	1674.6	21.01	12.60	721
140.0	5.61728	74.63	3047.1	1800.9	20.98	12.59	745
150.0	5.26456	76.08	3256.7	1927.1	20.95	12.59	767
160.0	4.95385	77.43	3466.1	2053.0	20.92	12.58	789
170.0	4.67800	78.70	3675.2	2178.8	20.91	12.57	811
180.0	4.43144	79.89	3884.2	2304.5	20.89	12.57	831
190.0	4.20970	81.02	4093.0	2430.2	20.88	12.56	852
200.0	4.00921	82.09	4301.7	2555.7	20.86	12.56	872
210.0	3.82702	83.11	4510.3	2681.1	20.85	12.56	891
220.0	3.66074	84.08	4718.8	2806.5	20.84	12.55	910
230.0	3.50836	85.00	4927.2	2931.9	20.84	12.55	929
240.0	3.36819	85.89	5135.5	3057.2	20.83	12.55	947
250.0	3.23882	86.74	5343.8	3182.5	20.82	12.54	965
260.0	3.11905	87.56	5552.0	3307.7	20.82	12.54	983
270.0	3.00784	88.34	5760.2	3432.9	20.81	12.54	1000
280.0	2.90431	89.10	5968.3	3558.0	20.81	12.54	1017
290.0	2.80768	89.83	6176.4	3683.2	20.81	12.54	1034
300.0	2.71728	90.54	6384.4	3808.3	20.80	12.53	1050
310.0	2.63253	91.22	6592.5	3933.4	20.80	12.53	1066
320.0	2.55291	91.88	6800.5	4058.4	20.80	12.53	1082
330.0	2.47797	92.52	7008.4	4183.5	20.80	12.53	1098
340.0	2.40731	93.14	7216.4	4308.5	20.79	12.53	1113
350.0	2.34057	93.74	7424.3	4433.5	20.79	12.53	1129
360.0	2.27744	94.33	7632.3	4558.5	20.79	12.53	1144
370.0	2.21762	94.90	7840.2	4683.5	20.79	12.53	1159
380.0	2.16087	95.45	8048.1	4808.5	20.79	12.52	1173
390.0	2.10695	95.99	8255.9	4933.5	20.79	12.52	1188
400.0	2.05566	96.52	8463.8	5058.5	20.79	12.52	1202
420.0	1.96022	97.53	8879.5	5308.4	20.78	12.52	1230
440.0	1.87325	98.50	9295.2	5558.2	20.78	12.52	1258
460.0	1.79367	99.42	9710.8	5808.1	20.78	12.52	1285
480.0	1.72058	100.31	10126.4	6057.9	20.78	12.52	1311
500.0	1.65321	101.15	10542.0	6307.7	20.78	12.52	1337
550.0	1.50580	103.14	11581.0	6932.1	20.78	12.51	1400
600.0	1.38253	104.94	12619.8	7556.5	20.78	12.51	1460
650.0	1.27790	106.61	13658.7	8180.8	20.78	12.51	1518
700.0	1.18799	108.15	14697.5	8805.0	20.78	12.51	1573
750.0	1.10990	109.58	15736.3	9429.2	20.78	12.51	1627
800.0	1.04143	110.92	16775.0	10053.3	20.78	12.50	1679
850.0	0.98092	112.18	17813.8	10677.5	20.78	12.50	1729
900.0	0.92705	113.37	18852.6	11301.6	20.78	12.50	1778
950.0	0.87879	114.49	19891.4	11925.7	20.78	12.50	1826
1000.0	0.83530	115.56	20930.2	12549.7	20.78	12.50	1873
1100.0	0.76006	117.54	23007.8	13797.8	20.78	12.50	1962
1200.0	0.69726	119.34	25085.5	15045.9	20.78	12.50	2048
1300.0	0.64403	121.01	27163.2	16293.9	20.78	12.50	2131
1400.0	0.59836	122.55	29240.9	17541.8	20.78	12.50	2210
1500.0	0.55873	123.98	31318.7	18789.8	20.78	12.50	2286

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

8 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
3.5	49.84110	6.81	192.0	31.5	9.94	8.78	537
4.0	49.44240	8.13	196.9	35.1	9.82	8.94	535
4.5	49.11144	9.28	201.8	38.9	9.67	8.92	533
5.0	48.81506	10.29	206.6	42.7	9.57	8.85	531
5.5	48.53382	11.20	211.4	46.6	9.56	8.82	529
6.0	48.25552	12.04	216.2	50.4	9.65	8.83	526
6.5	47.97210	12.81	221.1	54.3	9.82	8.89	523
7.0	47.67807	13.55	226.0	58.2	10.08	9.00	520
7.5	47.36962	14.26	231.1	62.3	10.40	9.14	517
8.0	47.04404	14.94	236.4	66.4	10.79	9.31	514
8.5	46.69942	15.61	241.9	70.6	11.23	9.49	511
9.0	46.33440	16.26	247.7	75.0	11.71	9.69	508
9.5	45.94805	16.91	253.7	79.5	12.24	9.90	505
10.0	45.53975	17.55	259.9	84.2	12.81	10.11	502
11.0	44.65620	18.83	273.3	94.2	14.03	10.53	495
12.0	43.68386	20.11	288.0	104.9	15.34	10.93	488
13.0	42.62645	21.39	304.0	116.4	16.70	11.30	481
14.0	41.49169	22.68	321.4	128.6	18.07	11.62	474
15.0	40.29171	23.97	340.2	141.6	19.40	11.91	468
16.0	39.04311	25.26	360.2	155.3	20.62	12.15	462
17.0	37.76625	26.54	381.3	169.5	21.68	12.35	457
18.0	36.48334	27.81	403.5	184.2	22.55	12.51	452
19.0	35.21595	29.04	426.4	199.2	23.20	12.63	449
20.0	33.98254	30.25	449.8	214.4	23.66	12.73	447
22.0	31.66793	32.53	497.6	245.0	24.08	12.86	445
24.0	29.59357	34.62	545.8	275.5	24.08	12.92	446
26.0	27.75921	36.54	593.8	305.6	23.90	12.96	449
28.0	26.14004	38.31	641.4	335.3	23.65	12.97	453
30.0	24.70545	39.93	688.4	364.6	23.40	12.97	458
32.0	23.42684	41.43	735.0	393.5	23.17	12.96	463
34.0	22.27990	42.83	781.1	422.0	22.96	12.95	468
36.0	21.24472	44.14	826.9	450.3	22.78	12.93	473
38.0	20.30508	45.36	872.3	478.3	22.63	12.92	479
40.0	19.44782	46.52	917.4	506.0	22.49	12.90	485
45.0	17.59872	49.15	1029.1	574.5	22.22	12.86	499
50.0	16.07727	51.48	1139.7	642.0	22.01	12.83	514
55.0	14.80194	53.57	1249.3	708.8	21.86	12.80	529
60.0	13.71680	55.47	1358.3	775.0	21.73	12.77	544
65.0	12.78196	57.20	1466.6	840.7	21.62	12.75	558
70.0	11.96805	58.80	1574.5	906.0	21.53	12.73	573
75.0	11.25293	60.29	1682.0	971.0	21.46	12.72	587
80.0	10.61956	61.67	1789.1	1035.7	21.39	12.70	601
85.0	10.05463	62.96	1895.9	1100.2	21.33	12.69	615
90.0	9.54756	64.18	2002.4	1164.5	21.28	12.68	628
95.0	9.08983	65.33	2108.7	1228.6	21.24	12.67	641
100.0	8.67455	66.42	2214.8	1292.5	21.20	12.66	655

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

8 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	7.94956	68.44	2426.4	1420.0	21.13	12.64	680
120.0	7.33766	70.27	2637.4	1547.1	21.08	12.63	704
130.0	6.81415	71.96	2847.9	1673.9	21.03	12.62	728
140.0	6.36104	73.51	3058.1	1800.4	21.00	12.61	751
150.0	5.96493	74.96	3267.9	1926.7	20.97	12.60	774
160.0	5.61565	76.31	3477.4	2052.8	20.94	12.59	796
170.0	5.30529	77.58	3686.7	2178.8	20.92	12.59	817
180.0	5.02765	78.78	3895.8	2304.6	20.90	12.58	837
190.0	4.77780	79.91	4104.8	2430.3	20.89	12.58	858
200.0	4.55173	80.98	4313.6	2556.0	20.87	12.57	877
210.0	4.34619	82.00	4522.3	2681.5	20.86	12.57	897
220.0	4.15850	82.97	4730.8	2807.0	20.85	12.56	915
230.0	3.98640	83.89	4939.3	2932.5	20.84	12.56	934
240.0	3.82803	84.78	5147.7	3057.8	20.84	12.56	952
250.0	3.68181	85.63	5356.1	3183.2	20.83	12.55	970
260.0	3.54637	86.45	5564.4	3308.5	20.83	12.55	987
270.0	3.42057	87.23	5772.6	3433.7	20.82	12.55	1005
280.0	3.30341	87.99	5980.8	3559.0	20.82	12.55	1021
290.0	3.19403	88.72	6188.9	3684.1	20.81	12.55	1038
300.0	3.09167	89.43	6397.0	3809.3	20.81	12.54	1054
310.0	2.99568	90.11	6605.0	3934.5	20.80	12.54	1070
320.0	2.90548	90.77	6813.1	4059.6	20.80	12.54	1086
330.0	2.82056	91.41	7021.1	4184.7	20.80	12.54	1102
340.0	2.74047	92.03	7229.1	4309.8	20.80	12.54	1117
350.0	2.66481	92.63	7437.0	4434.8	20.79	12.54	1133
360.0	2.59321	93.22	7644.9	4559.9	20.79	12.53	1148
370.0	2.52537	93.79	7852.9	4684.9	20.79	12.53	1162
380.0	2.46099	94.34	8060.8	4809.9	20.79	12.53	1177
390.0	2.39981	94.88	8268.7	4935.0	20.79	12.53	1192
400.0	2.34160	95.41	8476.5	5060.0	20.79	12.53	1206
420.0	2.23326	96.42	8892.2	5309.9	20.79	12.53	1234
440.0	2.13451	97.39	9307.9	5559.9	20.78	12.53	1261
460.0	2.04412	98.32	9723.6	5809.8	20.78	12.52	1288
480.0	1.96107	99.20	10139.2	6059.7	20.78	12.52	1315
500.0	1.88451	100.05	10554.8	6309.5	20.78	12.52	1340
550.0	1.71694	102.03	11593.7	6934.1	20.78	12.52	1403
600.0	1.57672	103.84	12632.5	7558.6	20.78	12.52	1463
650.0	1.45767	105.50	13671.3	8182.9	20.78	12.51	1520
700.0	1.35533	107.04	14710.0	8807.3	20.78	12.51	1576
750.0	1.26641	108.47	15748.8	9431.6	20.77	12.51	1629
800.0	1.18844	109.81	16787.5	10055.8	20.77	12.51	1681
850.0	1.11950	111.07	17826.2	10680.0	20.77	12.51	1731
900.0	1.05812	112.26	18865.0	11304.2	20.77	12.51	1780
950.0	1.00312	113.38	19903.7	11928.4	20.77	12.51	1828
1000.0	0.95355	114.45	20942.4	12552.5	20.78	12.51	1874
1100.0	0.86778	116.43	23019.9	13800.7	20.78	12.50	1964
1200.0	0.79616	118.24	25097.5	15048.9	20.78	12.50	2050
1300.0	0.73545	119.90	27175.0	16297.1	20.78	12.50	2132
1400.0	0.68334	121.44	29252.6	17545.2	20.78	12.50	2211
1500.0	0.63813	122.87	31330.3	18793.3	20.78	12.50	2288

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

9 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
3.5	50.79744	6.44	210.6	33.4	10.69	9.27	555
4.0	50.37005	7.84	215.8	37.1	10.26	9.28	554
4.5	50.03007	9.02	220.8	40.9	9.92	9.13	553
5.0	49.73570	10.06	225.7	44.8	9.69	8.98	551
5.5	49.46368	10.97	230.6	48.6	9.58	8.87	550
6.0	49.19983	11.81	235.3	52.4	9.59	8.83	547
6.5	48.93503	12.58	240.2	56.2	9.69	8.84	545
7.0	48.66319	13.30	245.0	60.1	9.88	8.91	543
7.5	48.38015	13.99	250.1	64.0	10.14	9.03	540
8.0	48.08300	14.66	255.2	68.0	10.48	9.17	538
8.5	47.76974	15.30	260.5	72.1	10.86	9.34	535
9.0	47.43894	15.94	266.1	76.4	11.30	9.53	532
9.5	47.08965	16.56	271.8	80.7	11.78	9.73	530
10.0	46.72126	17.18	277.9	85.2	12.29	9.93	527
11.0	45.92597	18.40	290.7	94.7	13.40	10.35	521
12.0	45.05274	19.62	304.7	104.9	14.60	10.75	515
13.0	44.10413	20.83	319.9	115.8	15.85	11.13	509
14.0	43.08547	22.06	336.4	127.5	17.12	11.47	503
15.0	42.00500	23.28	354.1	139.9	18.37	11.77	496
16.0	40.87403	24.50	373.1	152.9	19.55	12.03	490
17.0	39.70672	25.72	393.2	166.5	20.63	12.25	485
18.0	38.51937	26.93	414.3	180.7	21.58	12.43	480
19.0	37.32912	28.12	436.3	195.2	22.36	12.58	476
20.0	36.15236	29.28	459.0	210.0	22.96	12.69	473
22.0	33.89285	31.51	505.7	240.2	23.68	12.85	469
24.0	31.81475	33.58	553.4	270.5	23.92	12.94	468
26.0	29.94279	35.49	601.2	300.6	23.87	12.99	469
28.0	28.27023	37.26	648.8	330.4	23.70	13.01	472
30.0	26.77663	38.88	696.0	359.8	23.48	13.01	476
32.0	25.43843	40.39	742.7	388.9	23.26	13.00	480
34.0	24.23357	41.80	789.0	417.6	23.05	12.99	485
36.0	23.14297	43.11	834.9	446.0	22.86	12.98	490
38.0	22.15064	44.34	880.5	474.1	22.70	12.96	495
40.0	21.24334	45.50	925.7	502.0	22.55	12.94	500
45.0	19.27964	48.14	1037.7	570.9	22.26	12.90	514
50.0	17.65634	50.47	1148.5	638.7	22.05	12.87	528
55.0	16.28974	52.57	1258.3	705.8	21.88	12.83	542
60.0	15.12234	54.46	1367.4	772.2	21.75	12.81	556
65.0	14.11305	56.20	1475.8	838.1	21.65	12.78	570
70.0	13.23156	57.80	1583.8	903.6	21.56	12.76	583
75.0	12.45492	59.29	1691.4	968.8	21.48	12.74	597
80.0	11.76541	60.67	1798.7	1033.7	21.42	12.73	611
85.0	11.14909	61.97	1905.6	1098.3	21.36	12.71	624
90.0	10.59486	63.19	2012.3	1162.8	21.31	12.70	637
95.0	10.09376	64.34	2118.7	1227.0	21.26	12.69	650
100.0	9.63846	65.43	2224.9	1291.1	21.22	12.68	663

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

9 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	8.84215	67.45	2436.7	1418.9	21.15	12.66	688
120.0	8.16866	69.28	2648.0	1546.2	21.10	12.65	712
130.0	7.59147	70.97	2858.7	1673.2	21.05	12.63	735
140.0	7.09119	72.53	3069.1	1799.8	21.02	12.62	758
150.0	6.65333	73.98	3279.0	1926.3	20.98	12.61	780
160.0	6.26681	75.33	3488.7	2052.6	20.96	12.61	802
170.0	5.92306	76.60	3698.2	2178.7	20.93	12.60	823
180.0	5.61531	77.80	3907.4	2304.6	20.92	12.59	843
190.0	5.33815	78.93	4116.5	2430.5	20.90	12.59	863
200.0	5.08722	80.00	4325.4	2556.2	20.88	12.58	883
210.0	4.85893	81.02	4534.2	2681.9	20.87	12.58	902
220.0	4.65036	81.99	4742.9	2807.5	20.86	12.57	921
230.0	4.45902	82.92	4951.4	2933.0	20.85	12.57	939
240.0	4.28287	83.80	5159.9	3058.5	20.84	12.57	957
250.0	4.12015	84.65	5368.3	3183.9	20.84	12.56	975
260.0	3.96939	85.47	5576.7	3309.2	20.83	12.56	992
270.0	3.82930	86.26	5784.9	3434.6	20.83	12.56	1009
280.0	3.69879	87.02	5993.2	3559.9	20.82	12.56	1026
290.0	3.57690	87.75	6201.3	3685.1	20.82	12.55	1042
300.0	3.46280	88.45	6409.5	3810.3	20.81	12.55	1059
310.0	3.35577	89.13	6617.6	3935.5	20.81	12.55	1075
320.0	3.25517	89.79	6825.6	4060.7	20.80	12.55	1091
330.0	3.16044	90.43	7033.6	4185.9	20.80	12.55	1106
340.0	3.07107	91.06	7241.6	4311.0	20.80	12.54	1121
350.0	2.98662	91.66	7449.6	4436.1	20.80	12.54	1137
360.0	2.90670	92.24	7657.6	4561.2	20.79	12.54	1152
370.0	2.83095	92.81	7865.5	4686.3	20.79	12.54	1166
380.0	2.75905	93.37	8073.4	4811.3	20.79	12.54	1181
390.0	2.69071	93.91	8281.3	4936.4	20.79	12.54	1195
400.0	2.62568	94.43	8489.2	5061.4	20.79	12.54	1209
420.0	2.50462	95.45	8905.0	5311.5	20.79	12.53	1237
440.0	2.39423	96.42	9320.6	5561.5	20.78	12.53	1265
460.0	2.29317	97.34	9736.3	5811.5	20.78	12.53	1292
480.0	2.20029	98.22	10151.9	6061.4	20.78	12.53	1318
500.0	2.11464	99.07	10567.5	6311.3	20.78	12.53	1344
550.0	1.92710	101.05	11606.4	6936.0	20.78	12.52	1406
600.0	1.77011	102.86	12645.2	7560.6	20.78	12.52	1465
650.0	1.63676	104.52	13683.9	8185.1	20.77	12.52	1523
700.0	1.52209	106.06	14722.6	8809.5	20.77	12.52	1578
750.0	1.42243	107.50	15761.3	9433.9	20.77	12.52	1632
800.0	1.33501	108.84	16800.0	10058.3	20.77	12.51	1683
850.0	1.25771	110.10	17838.6	10682.6	20.77	12.51	1733
900.0	1.18886	111.28	18877.3	11306.8	20.77	12.51	1782
950.0	1.12716	112.41	19916.0	11931.1	20.77	12.51	1830
1000.0	1.07154	113.47	20954.7	12555.3	20.77	12.51	1876
1100.0	0.97528	115.45	23032.0	13803.7	20.77	12.51	1966
1200.0	0.89486	117.26	25109.4	15052.0	20.77	12.51	2051
1300.0	0.82672	118.92	27186.9	16300.3	20.78	12.50	2133
1400.0	0.76821	120.46	29264.4	17548.5	20.78	12.50	2212
1500.0	0.71742	121.90	31341.9	18796.7	20.78	12.50	2289

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

10 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
4.0	51.24649	7.54	234.3	39.1	10.81	9.68	571
4.5	50.89108	8.78	239.5	43.0	10.25	9.40	571
5.0	50.59345	9.84	244.6	46.9	9.87	9.14	570
5.5	50.32570	10.76	249.4	50.7	9.65	8.95	569
6.0	50.07133	11.60	254.2	54.5	9.57	8.85	567
6.5	49.81999	12.37	259.0	58.3	9.60	8.82	565
7.0	49.56487	13.08	263.9	62.1	9.73	8.85	563
7.5	49.30137	13.76	268.8	65.9	9.94	8.93	561
8.0	49.02633	14.41	273.8	69.8	10.23	9.06	559
8.5	48.73758	15.04	279.0	73.8	10.57	9.21	557
9.0	48.43361	15.65	284.4	77.9	10.96	9.38	555
9.5	48.11341	16.26	290.0	82.1	11.39	9.57	552
10.0	47.77632	16.85	295.8	86.5	11.86	9.77	550
11.0	47.05016	18.03	308.1	95.6	12.88	10.18	545
12.0	46.25448	19.20	321.6	105.4	13.99	10.58	540
13.0	45.39114	20.37	336.2	115.8	15.16	10.97	534
14.0	44.46415	21.53	351.9	127.0	16.34	11.32	529
15.0	43.47961	22.70	368.8	138.8	17.52	11.63	523
16.0	42.44576	23.87	386.9	151.3	18.66	11.91	517
17.0	41.37291	25.03	406.1	164.4	19.73	12.15	511
18.0	40.27316	26.19	426.4	178.0	20.70	12.35	506
19.0	39.15978	27.33	447.5	192.1	21.54	12.51	502
20.0	38.04632	28.45	469.4	206.5	22.24	12.65	498
22.0	35.86848	30.62	514.9	236.1	23.20	12.84	492
24.0	33.81807	32.66	561.8	266.1	23.65	12.95	490
26.0	31.93593	34.56	609.3	296.2	23.77	13.01	490
28.0	30.23130	36.32	656.8	326.0	23.70	13.04	491
30.0	28.69490	37.95	704.0	355.5	23.53	13.05	494
32.0	27.30969	39.46	750.9	384.7	23.33	13.05	497
34.0	26.05708	40.87	797.3	413.5	23.13	13.03	501
36.0	24.91965	42.19	843.4	442.1	22.94	13.02	506
38.0	23.88214	43.42	889.1	470.4	22.77	13.00	510
40.0	22.93156	44.59	934.5	498.4	22.62	12.99	515
45.0	20.86787	47.23	1046.8	567.5	22.31	12.94	528
50.0	19.15503	49.57	1157.7	635.6	22.08	12.90	541
55.0	17.70762	51.67	1267.7	702.9	21.91	12.87	554
60.0	16.46683	53.57	1376.9	769.6	21.78	12.84	568
65.0	15.39060	55.31	1485.5	835.7	21.67	12.81	581
70.0	14.44787	56.91	1593.6	901.4	21.58	12.79	594
75.0	13.61508	58.39	1701.3	966.8	21.50	12.77	608
80.0	12.87396	59.78	1808.6	1031.8	21.43	12.75	621
85.0	12.21013	61.08	1915.6	1096.6	21.38	12.73	634
90.0	11.61206	62.30	2022.4	1161.2	21.33	12.72	646
95.0	11.07042	63.45	2128.9	1225.5	21.28	12.71	659
100.0	10.57756	64.54	2235.2	1289.8	21.24	12.70	671

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

10 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	9.71392	66.56	2447.2	1417.8	21.17	12.68	696
120.0	8.98193	68.40	2658.7	1545.3	21.12	12.66	720
130.0	8.35350	70.09	2869.6	1672.5	21.07	12.65	743
140.0	7.80801	71.65	3080.1	1799.3	21.03	12.64	765
150.0	7.32997	73.10	3290.2	1925.9	21.00	12.63	787
160.0	6.90754	74.45	3500.1	2052.3	20.97	12.62	808
170.0	6.53150	75.72	3709.7	2178.6	20.95	12.61	829
180.0	6.19456	76.92	3919.0	2304.7	20.93	12.60	849
190.0	5.89090	78.05	4128.2	2430.6	20.91	12.60	869
200.0	5.61579	79.12	4337.2	2556.5	20.89	12.59	888
210.0	5.36536	80.14	4546.1	2682.2	20.88	12.59	907
220.0	5.13642	81.11	4754.9	2807.9	20.87	12.58	926
230.0	4.92631	82.04	4963.5	2933.5	20.86	12.58	944
240.0	4.73278	82.93	5172.0	3059.1	20.85	12.58	962
250.0	4.55394	83.78	5380.5	3184.6	20.84	12.57	980
260.0	4.38817	84.60	5588.9	3310.0	20.84	12.57	997
270.0	4.23408	85.38	5797.2	3435.4	20.83	12.57	1014
280.0	4.09048	86.14	6005.5	3560.7	20.82	12.56	1030
290.0	3.95632	86.87	6213.7	3686.1	20.82	12.56	1047
300.0	3.83071	87.58	6421.9	3811.3	20.82	12.56	1063
310.0	3.71284	88.26	6630.0	3936.6	20.81	12.56	1079
320.0	3.60202	88.92	6838.1	4061.8	20.81	12.56	1095
330.0	3.49764	89.56	7046.2	4187.0	20.80	12.55	1110
340.0	3.39914	90.18	7254.2	4312.2	20.80	12.55	1125
350.0	3.30605	90.79	7462.2	4437.4	20.80	12.55	1141
360.0	3.21793	91.37	7670.2	4562.5	20.80	12.55	1155
370.0	3.13439	91.94	7878.1	4687.6	20.79	12.55	1170
380.0	3.05508	92.50	8086.1	4812.7	20.79	12.55	1185
390.0	2.97969	93.04	8294.0	4937.8	20.79	12.54	1199
400.0	2.90793	93.56	8501.9	5062.9	20.79	12.54	1213
420.0	2.77431	94.58	8917.6	5313.0	20.79	12.54	1241
440.0	2.65244	95.54	9333.3	5563.1	20.78	12.54	1268
460.0	2.54083	96.47	9749.0	5813.1	20.78	12.54	1295
480.0	2.43823	97.35	10164.6	6063.1	20.78	12.54	1321
500.0	2.34359	98.20	10580.2	6313.1	20.78	12.53	1347
550.0	2.13631	100.18	11619.0	6937.9	20.78	12.53	1409
600.0	1.96270	101.99	12657.8	7562.6	20.77	12.53	1468
650.0	1.81518	103.65	13696.5	8187.3	20.77	12.52	1525
700.0	1.68827	105.19	14735.2	8811.8	20.77	12.52	1581
750.0	1.57794	106.62	15773.8	9436.3	20.77	12.52	1634
800.0	1.48114	107.96	16812.4	10060.7	20.77	12.52	1685
850.0	1.39553	109.22	17851.0	10685.1	20.77	12.52	1736
900.0	1.31926	110.41	18889.6	11309.4	20.77	12.52	1784
950.0	1.25089	111.53	19928.2	11933.7	20.77	12.51	1832
1000.0	1.18926	112.60	20966.9	12558.0	20.77	12.51	1878
1100.0	1.08257	114.58	23044.1	13806.6	20.77	12.51	1967
1200.0	0.99343	116.39	25121.4	15055.0	20.77	12.51	2053
1300.0	0.91785	118.05	27198.8	16303.4	20.77	12.51	2135
1400.0	0.85295	119.59	29276.1	17551.8	20.77	12.51	2214
1500.0	0.79662	121.02	31353.6	18800.1	20.77	12.51	2290

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

15 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
4.5	54.66170	7.46	328.3	53.9	13.13	11.45	641
5.0	54.28017	8.75	334.4	58.1	11.59	10.46	643
5.5	53.97931	9.81	340.0	62.1	10.63	9.76	645
6.0	53.72290	10.71	345.1	65.9	10.02	9.27	646
6.5	53.49066	11.49	350.0	69.6	9.67	8.96	646
7.0	53.27025	12.20	354.8	73.2	9.49	8.77	646
7.5	53.05379	12.85	359.5	76.8	9.45	8.68	646
8.0	52.83607	13.47	364.3	80.4	9.51	8.67	646
8.5	52.61358	14.05	369.1	84.0	9.66	8.72	646
9.0	52.38390	14.60	374.0	87.6	9.88	8.82	645
9.5	52.14543	15.15	379.0	91.3	10.16	8.95	645
10.0	51.89706	15.68	384.1	95.1	10.48	9.10	644
11.0	51.36809	16.71	395.0	102.9	11.23	9.46	643
12.0	50.79430	17.72	406.6	111.3	12.07	9.86	640
13.0	50.17563	18.72	419.1	120.2	12.98	10.25	638
14.0	49.51361	19.72	432.6	129.6	13.92	10.64	635
15.0	48.81080	20.71	447.0	139.7	14.88	11.00	631
16.0	48.07052	21.70	462.3	150.3	15.83	11.34	627
17.0	47.29665	22.69	478.6	161.5	16.75	11.64	623
18.0	46.49361	23.67	495.8	173.2	17.64	11.91	618
19.0	45.66625	24.65	513.9	185.4	18.49	12.15	614
20.0	44.81979	25.62	532.8	198.1	19.28	12.35	609
22.0	43.09159	27.52	572.8	224.7	20.64	12.68	601
24.0	41.35339	29.37	615.2	252.4	21.70	12.91	594
26.0	39.64615	31.14	659.4	281.0	22.45	13.06	588
28.0	38.00253	32.82	704.8	310.1	22.92	13.15	584
30.0	36.44431	34.41	750.9	339.3	23.17	13.20	582
32.0	34.98274	35.91	797.3	368.5	23.25	13.22	581
34.0	33.62078	37.32	843.8	397.7	23.23	13.23	582
36.0	32.35582	38.64	890.2	426.6	23.15	13.22	583
38.0	31.18212	39.89	936.4	455.3	23.03	13.21	585
40.0	30.09249	41.07	982.3	483.9	22.90	13.19	588
45.0	27.68757	43.75	1096.0	554.2	22.57	13.14	596
50.0	25.65570	46.11	1208.1	623.4	22.29	13.08	606
55.0	23.91417	48.22	1318.9	691.7	22.06	13.03	616
60.0	22.40210	50.13	1428.8	759.2	21.89	12.99	626
65.0	21.07484	51.88	1537.9	826.1	21.75	12.95	637
70.0	19.89904	53.49	1646.3	892.5	21.64	12.91	648
75.0	18.84930	54.98	1754.3	958.5	21.56	12.89	659
80.0	17.90586	56.37	1861.9	1024.2	21.48	12.86	670
85.0	17.05305	57.67	1969.2	1089.5	21.42	12.84	681
90.0	16.27825	58.89	2076.2	1154.7	21.37	12.82	693
95.0	15.57113	60.04	2182.9	1219.6	21.33	12.80	704
100.0	14.92314	61.14	2289.4	1284.3	21.29	12.78	715

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

15 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	13.77713	63.16	2502.0	1413.2	21.22	12.76	737
120.0	12.79526	65.01	2713.9	1541.6	21.17	12.74	758
130.0	11.94462	66.70	2925.3	1669.5	21.12	12.72	779
140.0	11.20056	68.26	3136.3	1797.1	21.08	12.70	800
150.0	10.54424	69.72	3347.0	1924.4	21.05	12.69	820
160.0	9.96099	71.07	3557.3	2051.4	21.02	12.68	840
170.0	9.43923	72.35	3767.4	2178.2	20.99	12.67	860
180.0	8.96971	73.55	3977.2	2304.9	20.97	12.66	879
190.0	8.54495	74.68	4186.8	2431.3	20.95	12.65	898
200.0	8.15880	75.75	4396.2	2557.7	20.93	12.64	916
210.0	7.80623	76.78	4605.5	2683.9	20.92	12.64	935
220.0	7.48302	77.75	4814.6	2810.0	20.90	12.63	952
230.0	7.18564	78.68	5023.5	2936.0	20.89	12.63	970
240.0	6.91109	79.57	5232.4	3061.9	20.88	12.62	987
250.0	6.65685	80.42	5441.1	3187.7	20.87	12.62	1004
260.0	6.42072	81.24	5649.8	3313.5	20.86	12.61	1021
270.0	6.20083	82.02	5858.3	3439.2	20.85	12.61	1037
280.0	5.99555	82.78	6066.8	3564.9	20.84	12.61	1053
290.0	5.80348	83.51	6275.2	3690.5	20.84	12.60	1069
300.0	5.62336	84.22	6483.6	3816.0	20.83	12.60	1085
310.0	5.45412	84.90	6691.9	3941.6	20.83	12.60	1100
320.0	5.29480	85.56	6900.1	4067.0	20.82	12.59	1116
330.0	5.14454	86.20	7108.3	4192.5	20.82	12.59	1131
340.0	5.00260	86.83	7316.4	4317.9	20.81	12.59	1146
350.0	4.86829	87.43	7524.5	4443.3	20.81	12.59	1160
360.0	4.74102	88.02	7732.6	4568.7	20.81	12.58	1175
370.0	4.62024	88.59	7940.7	4694.0	20.80	12.58	1189
380.0	4.50548	89.14	8148.7	4819.3	20.80	12.58	1203
390.0	4.39628	89.68	8356.7	4944.6	20.80	12.58	1217
400.0	4.29226	90.21	8564.6	5069.9	20.80	12.58	1231
420.0	4.09834	91.22	8980.5	5320.4	20.79	12.57	1258
440.0	3.92119	92.19	9396.2	5570.8	20.79	12.57	1285
460.0	3.75873	93.11	9812.0	5821.1	20.78	12.57	1311
480.0	3.60921	94.00	10227.6	6071.5	20.78	12.57	1337
500.0	3.47113	94.84	10643.2	6321.7	20.78	12.56	1362
550.0	3.16812	96.83	11682.0	6947.2	20.77	12.56	1423
600.0	2.91375	98.63	12720.7	7572.6	20.77	12.55	1482
650.0	2.69719	100.30	13759.2	8197.7	20.77	12.55	1538
700.0	2.51057	101.83	14797.7	8822.8	20.77	12.55	1593
750.0	2.34809	103.27	15836.1	9447.8	20.77	12.54	1645
800.0	2.20535	104.61	16874.5	10072.7	20.77	12.54	1696
850.0	2.07896	105.87	17912.8	10697.5	20.77	12.54	1746
900.0	1.96626	107.05	18951.2	11322.3	20.77	12.54	1794
950.0	1.86514	108.18	19989.5	11947.0	20.77	12.54	1841
1000.0	1.77390	109.24	21027.8	12571.7	20.77	12.53	1887
1100.0	1.61580	111.22	23104.5	13820.9	20.77	12.53	1975
1200.0	1.48355	113.03	25181.3	15070.1	20.77	12.53	2060
1300.0	1.37130	114.69	27258.1	16319.2	20.77	12.53	2141
1400.0	1.27482	116.23	29334.9	17568.2	20.77	12.52	2220
1500.0	1.19102	117.66	31411.8	18817.2	20.77	12.52	2296

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

20 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
5.5	57.03751	8.80	424.5	73.8	12.85	11.33	699
6.0	56.71618	9.85	430.5	77.9	11.39	10.28	703
6.5	56.45027	10.72	436.0	81.6	10.47	9.56	706
7.0	56.21639	11.48	441.0	85.2	9.89	9.07	708
7.5	56.00058	12.15	445.9	88.7	9.54	8.76	710
8.0	55.79400	12.76	450.6	92.1	9.37	8.58	712
8.5	55.59083	13.32	455.3	95.5	9.34	8.50	713
9.0	55.38716	13.86	460.0	98.8	9.40	8.49	714
9.5	55.18031	14.37	464.7	102.2	9.54	8.54	715
10.0	54.96845	14.86	469.5	105.7	9.75	8.64	716
11.0	54.52506	15.82	479.5	112.7	10.31	8.92	717
12.0	54.05129	16.74	490.2	120.1	10.99	9.28	717
13.0	53.54515	17.65	501.5	128.0	11.76	9.67	717
14.0	53.00668	18.56	513.7	136.4	12.58	10.07	716
15.0	52.43714	19.45	526.7	145.3	13.42	10.46	714
16.0	51.83845	20.35	540.6	154.7	14.27	10.83	712
17.0	51.21301	21.24	555.2	164.7	15.10	11.17	710
18.0	50.56344	22.12	570.8	175.2	15.92	11.49	706
19.0	49.89259	23.00	587.1	186.2	16.70	11.77	703
20.0	49.20342	23.88	604.1	197.7	17.45	12.03	699
22.0	47.78236	25.61	640.4	221.9	18.81	12.45	692
24.0	46.32507	27.30	679.3	247.5	19.98	12.77	684
26.0	44.85599	28.93	720.2	274.3	20.93	13.01	677
28.0	43.39779	30.51	762.8	302.0	21.67	13.17	670
30.0	41.97000	32.03	806.7	330.2	22.21	13.28	665
32.0	40.58801	33.47	851.5	358.8	22.57	13.35	661
34.0	39.26262	34.85	896.9	387.5	22.80	13.38	658
36.0	38.00034	36.16	942.7	416.3	22.91	13.40	657
38.0	36.80400	37.40	988.5	445.1	22.95	13.40	656
40.0	35.67370	38.57	1034.4	473.8	22.92	13.38	656
45.0	33.12208	41.26	1148.6	544.8	22.73	13.33	660
50.0	30.91750	43.65	1261.6	614.7	22.48	13.27	666
55.0	29.00034	45.78	1373.4	683.8	22.24	13.20	673
60.0	27.31820	47.70	1484.1	752.0	22.03	13.14	681
65.0	25.82894	49.46	1593.8	819.5	21.87	13.09	690
70.0	24.49958	51.07	1702.8	886.4	21.73	13.05	699
75.0	23.30434	52.57	1811.2	952.9	21.62	13.01	709
80.0	22.22290	53.96	1919.0	1019.0	21.53	12.97	718
85.0	21.23905	55.26	2026.5	1084.8	21.46	12.94	728
90.0	20.33968	56.49	2133.6	1150.3	21.40	12.92	738
95.0	19.51404	57.64	2240.5	1215.5	21.35	12.89	747
100.0	18.75322	58.74	2347.1	1280.6	21.30	12.87	757

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

20 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	17.39730	60.77	2559.8	1410.1	21.23	12.84	777
120.0	16.22462	62.61	2771.8	1539.1	21.18	12.81	796
130.0	15.20025	64.30	2983.4	1667.6	21.14	12.78	816
140.0	14.29771	65.87	3194.5	1795.7	21.10	12.76	835
150.0	13.49652	67.32	3405.4	1923.4	21.07	12.75	854
160.0	12.78053	68.68	3615.9	2050.9	21.04	12.73	873
170.0	12.13686	69.96	3826.1	2178.2	21.01	12.72	891
180.0	11.55510	71.16	4036.2	2305.3	20.99	12.71	909
190.0	11.02674	72.29	4246.0	2432.2	20.97	12.70	927
200.0	10.54474	73.37	4455.6	2558.9	20.95	12.69	945
210.0	10.10327	74.39	4665.1	2685.5	20.94	12.68	962
220.0	9.69742	75.36	4874.4	2811.9	20.92	12.68	979
230.0	9.32303	76.29	5083.5	2938.3	20.91	12.67	996
240.0	8.97658	77.18	5292.6	3064.5	20.90	12.66	1012
250.0	8.65505	78.04	5501.5	3190.7	20.89	12.66	1029
260.0	8.35585	78.85	5710.4	3316.8	20.88	12.65	1045
270.0	8.07670	79.64	5919.1	3442.8	20.87	12.65	1061
280.0	7.81567	80.40	6127.7	3568.7	20.86	12.64	1076
290.0	7.57104	81.13	6336.3	3694.6	20.85	12.64	1092
300.0	7.34130	81.84	6544.8	3820.4	20.85	12.64	1107
310.0	7.12513	82.52	6753.2	3946.2	20.84	12.63	1122
320.0	6.92137	83.18	6961.6	4071.9	20.83	12.63	1137
330.0	6.72896	83.83	7169.9	4197.6	20.83	12.63	1151
340.0	6.54699	84.45	7378.1	4323.2	20.82	12.62	1166
350.0	6.37463	85.05	7586.4	4448.8	20.82	12.62	1180
360.0	6.21112	85.64	7794.5	4574.4	20.81	12.62	1194
370.0	6.05581	86.21	8002.7	4699.9	20.81	12.61	1208
380.0	5.90809	86.76	8210.7	4825.5	20.81	12.61	1222
390.0	5.76742	87.30	8418.8	4950.9	20.80	12.61	1236
400.0	5.63330	87.83	8626.8	5076.4	20.80	12.61	1249
420.0	5.38297	88.84	9042.8	5327.3	20.80	12.60	1276
440.0	5.15397	89.81	9458.6	5578.0	20.79	12.60	1302
460.0	4.94367	90.74	9874.4	5828.7	20.79	12.60	1328
480.0	4.74987	91.62	10290.1	6079.3	20.78	12.59	1353
500.0	4.57069	92.47	10705.7	6329.9	20.78	12.59	1378
550.0	4.17682	94.45	11744.6	6956.1	20.77	12.58	1438
600.0	3.84544	96.26	12783.2	7582.1	20.77	12.58	1495
650.0	3.56276	97.92	13821.6	8207.8	20.77	12.57	1551
700.0	3.31878	99.46	14859.9	8833.4	20.77	12.57	1605
750.0	3.10605	100.89	15898.1	9458.9	20.76	12.57	1657
800.0	2.91893	102.23	16936.3	10084.3	20.76	12.56	1707
850.0	2.75305	103.49	17974.4	10709.6	20.76	12.56	1756
900.0	2.60500	104.68	19012.5	11334.8	20.76	12.56	1804
950.0	2.47204	105.80	20050.6	11959.9	20.76	12.56	1850
1000.0	2.35198	106.86	21088.7	12585.0	20.76	12.55	1896
1100.0	2.14372	108.84	23164.9	13835.0	20.76	12.55	1983
1200.0	1.96930	110.65	25241.1	15084.9	20.76	12.55	2067
1300.0	1.82111	112.31	27317.4	16334.7	20.76	12.54	2148
1400.0	1.69363	113.85	29393.7	17584.4	20.76	12.54	2226
1500.0	1.58281	115.28	31470.1	18834.0	20.76	12.54	2301

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

30 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
7.0	61.13997	9.93	600.5	109.8	12.89	11.03	795
7.5	60.83176	10.77	606.6	113.4	11.44	9.99	802
8.0	60.56840	11.47	612.0	116.7	10.51	9.28	807
8.5	60.33299	12.09	617.1	119.9	9.91	8.80	812
9.0	60.11496	12.64	622.0	122.9	9.55	8.49	816
9.5	59.90736	13.16	626.7	125.9	9.36	8.31	820
10.0	59.70551	13.63	631.4	128.9	9.30	8.23	823
11.0	59.30699	14.53	640.7	134.9	9.46	8.26	829
12.0	58.90337	15.36	650.4	141.1	9.87	8.48	833
13.0	58.48670	16.18	660.5	147.6	10.42	8.80	837
14.0	58.05330	16.97	671.3	154.5	11.08	9.18	839
15.0	57.60180	17.76	682.7	161.9	11.78	9.57	841
16.0	57.13217	18.54	694.8	169.7	12.51	9.98	842
17.0	56.64510	19.32	707.7	178.1	13.25	10.37	842
18.0	56.14176	20.10	721.3	187.0	13.98	10.74	841
19.0	55.62351	20.88	735.7	196.3	14.70	11.09	840
20.0	55.09188	21.65	750.7	206.2	15.39	11.42	838
22.0	53.99471	23.18	782.8	227.2	16.68	11.99	833
24.0	52.86273	24.68	817.4	249.8	17.83	12.45	827
26.0	51.70790	26.15	854.1	273.9	18.84	12.82	820
28.0	50.54143	27.58	892.6	299.0	19.70	13.10	814
30.0	49.37351	28.96	932.8	325.1	20.42	13.31	807
32.0	48.21329	30.30	974.2	352.0	21.01	13.47	801
34.0	47.06869	31.59	1016.7	379.3	21.48	13.58	795
36.0	45.94637	32.82	1060.0	407.1	21.84	13.65	790
38.0	44.85167	34.01	1104.0	435.1	22.11	13.69	786
40.0	43.78867	35.15	1148.4	463.3	22.31	13.71	782
45.0	41.28602	37.80	1260.7	534.0	22.54	13.70	777
50.0	39.01514	40.17	1373.4	604.5	22.54	13.64	775
55.0	36.96848	42.32	1485.8	674.3	22.42	13.57	777
60.0	35.12584	44.26	1597.6	743.5	22.26	13.48	780
65.0	33.46311	46.03	1708.4	811.9	22.09	13.41	785
70.0	31.95691	47.67	1818.5	879.7	21.94	13.34	791
75.0	30.58634	49.17	1927.8	947.0	21.80	13.27	798
80.0	29.33344	50.58	2036.5	1013.8	21.68	13.22	805
85.0	28.18309	51.89	2144.7	1080.2	21.58	13.17	813
90.0	27.12259	53.12	2252.3	1146.2	21.49	13.13	820
95.0	26.14127	54.28	2359.6	1212.0	21.42	13.09	828
100.0	25.23014	55.38	2466.6	1277.5	21.36	13.05	836

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

30 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	23.58913	57.41	2679.6	1407.8	21.26	13.00	853
120.0	22.15085	59.25	2891.9	1537.5	21.19	12.95	869
130.0	20.87895	60.95	3103.6	1666.7	21.14	12.92	886
140.0	19.74564	62.51	3314.8	1795.4	21.10	12.89	903
150.0	18.72918	63.97	3525.6	1923.8	21.07	12.86	919
160.0	17.81227	65.33	3736.2	2051.9	21.04	12.84	936
170.0	16.98092	66.60	3946.5	2179.8	21.02	12.82	952
180.0	16.22367	67.80	4156.6	2307.4	21.00	12.81	968
190.0	15.53107	68.94	4366.5	2434.8	20.98	12.79	985
200.0	14.89517	70.01	4576.2	2562.1	20.97	12.78	1000
210.0	14.30931	71.04	4785.8	2689.2	20.95	12.77	1016
220.0	13.76782	72.01	4995.3	2816.2	20.94	12.76	1032
230.0	13.26584	72.94	5204.6	2943.1	20.93	12.75	1047
240.0	12.79923	73.83	5413.8	3069.9	20.92	12.74	1063
250.0	12.36437	74.69	5622.9	3196.5	20.91	12.73	1078
260.0	11.95813	75.51	5831.9	3323.1	20.90	12.73	1093
270.0	11.57778	76.29	6040.8	3449.6	20.89	12.72	1107
280.0	11.22092	77.05	6249.6	3576.0	20.88	12.71	1122
290.0	10.88544	77.79	6458.4	3702.3	20.87	12.71	1136
300.0	10.56949	78.49	6667.0	3828.6	20.86	12.70	1151
310.0	10.27139	79.18	6875.6	3954.8	20.86	12.70	1165
320.0	9.98967	79.84	7084.1	4081.0	20.85	12.69	1179
330.0	9.72303	80.48	7292.6	4207.1	20.84	12.69	1193
340.0	9.47028	81.10	7501.0	4333.1	20.84	12.69	1207
350.0	9.23037	81.71	7709.3	4459.1	20.83	12.68	1220
360.0	9.00233	82.29	7917.6	4585.1	20.83	12.68	1234
370.0	8.78530	82.86	8125.9	4711.0	20.82	12.68	1247
380.0	8.57851	83.42	8334.1	4836.9	20.82	12.67	1260
390.0	8.38125	83.96	8542.3	4962.7	20.81	12.67	1273
400.0	8.19287	84.49	8750.4	5088.6	20.81	12.67	1286
420.0	7.84045	85.50	9166.5	5340.1	20.80	12.66	1312
440.0	7.51714	86.47	9582.5	5591.5	20.80	12.66	1337
460.0	7.21946	87.39	9998.4	5842.8	20.79	12.65	1361
480.0	6.94448	88.28	10414.2	6094.1	20.79	12.65	1385
500.0	6.68969	89.13	10829.9	6345.2	20.78	12.64	1409
550.0	6.12767	91.11	11868.8	6972.8	20.77	12.64	1467
600.0	5.65277	92.92	12907.3	7600.1	20.77	12.63	1523
650.0	5.24617	94.58	13945.6	8227.0	20.76	12.62	1577
700.0	4.89411	96.12	14983.7	8853.7	20.76	12.62	1629
750.0	4.58630	97.55	16021.6	9480.3	20.76	12.61	1680
800.0	4.31489	98.89	17059.5	10106.6	20.76	12.61	1729
850.0	4.07377	100.15	18097.2	10732.8	20.75	12.60	1777
900.0	3.85814	101.33	19134.9	11359.0	20.75	12.60	1824
950.0	3.66416	102.45	20172.6	11985.0	20.75	12.60	1869
1000.0	3.48873	103.52	21210.2	12610.9	20.75	12.59	1914
1100.0	3.18380	105.50	23285.5	13862.5	20.75	12.59	2000
1200.0	2.92781	107.30	25360.8	15113.9	20.75	12.58	2083
1300.0	2.70988	108.96	27436.0	16365.1	20.75	12.58	2162
1400.0	2.52209	110.50	29511.4	17616.2	20.75	12.58	2239
1500.0	2.35861	111.93	31586.8	18867.1	20.75	12.57	2313

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

40 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
8.0	64.73906	9.89	759.0	141.1	14.48	11.50	875
8.5	64.37630	10.71	765.8	144.4	12.58	10.29	884
9.0	64.07020	11.39	771.7	147.4	11.35	9.46	891
9.5	63.80079	11.98	777.2	150.2	10.55	8.89	898
10.0	63.55574	12.51	782.3	152.9	10.03	8.51	904
11.0	63.10906	13.44	792.1	158.2	9.58	8.14	914
12.0	62.69146	14.27	801.6	163.6	9.59	8.11	922
13.0	62.28365	15.05	811.4	169.1	9.89	8.29	929
14.0	61.87549	15.80	821.5	175.0	10.37	8.58	935
15.0	61.46165	16.53	832.1	181.3	10.94	8.94	939
16.0	61.03946	17.26	843.4	188.0	11.58	9.34	942
17.0	60.60776	17.98	855.3	195.3	12.24	9.74	944
18.0	60.16632	18.70	867.9	203.0	12.92	10.14	945
19.0	59.71542	19.42	881.1	211.3	13.59	10.53	945
20.0	59.25567	20.13	895.0	220.0	14.25	10.90	945
22.0	58.31283	21.55	924.8	238.8	15.50	11.57	942
24.0	57.34485	22.95	957.0	259.4	16.62	12.13	938
26.0	56.35898	24.32	991.2	281.5	17.63	12.60	933
28.0	55.36205	25.66	1027.4	304.8	18.50	12.98	927
30.0	54.36026	26.96	1065.1	329.3	19.25	13.28	921
32.0	53.35916	28.22	1104.3	354.7	19.89	13.52	914
34.0	52.36363	29.44	1144.6	380.7	20.43	13.69	908
36.0	51.37791	30.63	1186.0	407.4	20.88	13.83	902
38.0	50.40564	31.76	1228.1	434.5	21.24	13.92	896
40.0	49.44986	32.86	1270.9	462.0	21.53	13.98	891
45.0	47.14782	35.43	1379.9	531.5	22.02	14.04	880
50.0	44.98927	37.76	1490.6	601.5	22.24	14.01	873
55.0	42.98453	39.88	1602.0	671.4	22.29	13.94	869
60.0	41.13282	41.82	1713.4	740.9	22.25	13.85	868
65.0	39.42649	43.60	1824.4	809.8	22.16	13.75	869
70.0	37.85442	45.24	1934.9	878.2	22.04	13.66	872
75.0	36.40425	46.76	2044.9	946.0	21.92	13.58	875
80.0	35.06378	48.17	2154.2	1013.4	21.81	13.50	880
85.0	33.82160	49.49	2263.0	1080.2	21.70	13.43	886
90.0	32.66742	50.72	2371.2	1146.7	21.61	13.37	892
95.0	31.59210	51.89	2479.0	1212.9	21.52	13.31	899
100.0	30.58761	52.99	2586.4	1278.7	21.45	13.26	905

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

40 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	28.76397	55.83	2800.3	1409.6	21.33	13.18	920
120.0	27.15030	56.88	3013.1	1539.8	21.24	13.11	934
130.0	25.71105	58.58	3225.1	1669.3	21.17	13.06	949
140.0	24.41851	60.15	3436.5	1798.4	21.12	13.01	964
150.0	23.25079	61.60	3647.5	1927.1	21.08	12.98	979
160.0	22.19026	62.96	3858.1	2055.5	21.05	12.95	994
170.0	21.22261	64.24	4068.5	2183.6	21.02	12.92	1009
180.0	20.33602	65.44	4278.6	2311.6	21.00	12.90	1024
190.0	19.52063	66.57	4488.5	2439.3	20.98	12.88	1039
200.0	18.76816	67.65	4698.2	2566.9	20.97	12.86	1054
210.0	18.07158	68.67	4907.8	2694.3	20.95	12.85	1068
220.0	17.42488	69.64	5117.3	2821.6	20.94	12.84	1083
230.0	16.82288	70.57	5326.6	2948.8	20.93	12.82	1097
240.0	16.26111	71.47	5535.9	3075.9	20.92	12.81	1111
250.0	15.73567	72.32	5745.0	3202.9	20.91	12.80	1126
260.0	15.24315	73.14	5954.0	3329.8	20.90	12.80	1139
270.0	14.78055	73.93	6163.0	3456.7	20.89	12.79	1153
280.0	14.34522	74.69	6371.9	3583.4	20.88	12.78	1167
290.0	13.93484	75.42	6580.7	3710.1	20.88	12.77	1181
300.0	13.54731	76.13	6789.4	3836.7	20.87	12.77	1194
310.0	13.18078	76.81	6998.1	3963.2	20.86	12.76	1208
320.0	12.83359	77.47	7206.6	4089.7	20.86	12.76	1221
330.0	12.50424	78.12	7415.2	4216.2	20.85	12.75	1234
340.0	12.19140	78.74	7623.7	4342.6	20.84	12.75	1247
350.0	11.89386	79.34	7832.1	4468.9	20.84	12.74	1260
360.0	11.61051	79.93	8040.4	4595.2	20.83	12.74	1273
370.0	11.34037	80.50	8248.8	4721.4	20.83	12.73	1285
380.0	11.08253	81.06	8457.0	4847.6	20.82	12.73	1298
390.0	10.83618	81.60	8665.2	4973.8	20.82	12.73	1310
400.0	10.60055	82.12	8873.4	5099.9	20.82	12.72	1323
420.0	10.15879	83.14	9289.7	5352.1	20.81	12.71	1347
440.0	9.75242	84.11	9705.8	5604.1	20.80	12.71	1371
460.0	9.37735	85.03	10121.7	5856.0	20.80	12.70	1395
480.0	9.03008	85.92	10537.6	6107.8	20.79	12.70	1418
500.0	8.70763	86.76	10953.4	6359.6	20.79	12.69	1441
550.0	7.99404	88.74	11992.3	6988.5	20.78	12.68	1497
600.0	7.38857	90.55	13030.9	7617.0	20.77	12.67	1551
650.0	6.86834	92.21	14069.1	8245.1	20.76	12.67	1603
700.0	6.41653	93.75	15107.0	8872.9	20.76	12.66	1654
750.0	6.02044	95.18	16144.7	9500.5	20.75	12.65	1704
800.0	5.67037	96.52	17182.3	10127.9	20.75	12.65	1752
850.0	5.35872	97.78	18219.7	10755.1	20.75	12.64	1798
900.0	5.07950	98.97	19257.1	11382.1	20.75	12.64	1844
950.0	4.82790	100.09	20294.4	12009.0	20.75	12.64	1889
1000.0	4.60001	101.15	21331.7	12635.8	20.75	12.63	1932
1100.0	4.20311	103.13	23406.1	13889.1	20.74	12.63	2017
1200.0	3.86914	104.94	25480.5	15142.0	20.74	12.62	2098
1300.0	3.58426	106.60	27554.9	16394.7	20.74	12.61	2176
1400.0	3.33838	108.13	29629.4	17647.2	20.75	12.61	2252
1500.0	3.12400	109.56	31703.9	18899.5	20.75	12.61	2325

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

60 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
11.0	69.62025	10.98	1066.3	204.5	13.77	9.88	1051
12.0	68.96755	12.08	1079.0	209.0	11.77	8.81	1065
13.0	68.42329	12.98	1090.3	213.3	10.92	8.36	1077
14.0	67.93778	13.78	1101.0	217.8	10.68	8.27	1086
15.0	67.48558	14.52	1111.7	222.6	10.79	8.40	1093
16.0	67.05253	15.22	1122.7	227.8	11.10	8.66	1098
17.0	66.63035	15.91	1134.0	233.5	11.55	9.00	1103
18.0	66.21407	16.59	1145.8	239.6	12.06	9.38	1106
19.0	65.80072	17.25	1158.1	246.2	12.62	9.78	1108
20.0	65.38849	17.91	1171.0	253.4	13.19	10.17	1110
22.0	64.56378	19.23	1198.6	269.2	14.33	10.94	1110
24.0	63.73657	20.52	1228.3	286.9	15.41	11.64	1109
26.0	62.90701	21.79	1260.1	306.3	16.39	12.25	1106
28.0	62.07665	23.04	1293.8	327.2	17.26	12.77	1101
30.0	61.24750	24.26	1329.1	349.5	18.03	13.20	1096
32.0	60.42160	25.44	1365.8	372.8	18.69	13.56	1090
34.0	59.60084	26.59	1403.8	397.1	19.26	13.85	1084
36.0	58.78687	27.71	1442.8	422.2	19.74	14.08	1077
38.0	57.98115	28.79	1482.7	447.9	20.16	14.27	1071
40.0	57.18489	29.83	1523.4	474.1	20.50	14.41	1064
45.0	55.24189	32.28	1627.6	541.5	21.14	14.61	1049
50.0	53.37543	34.53	1734.4	610.2	21.52	14.67	1036
55.0	51.59205	36.60	1842.6	679.6	21.75	14.65	1025
60.0	49.89473	38.49	1951.6	749.1	21.86	14.58	1017
65.0	48.28390	40.24	2061.0	818.3	21.89	14.48	1011
70.0	46.75811	41.87	2170.5	887.2	21.88	14.36	1007
75.0	45.31467	43.37	2279.8	955.7	21.85	14.25	1006
80.0	43.94998	44.78	2388.9	1023.7	21.79	14.14	1006
85.0	42.65992	46.10	2497.7	1091.2	21.73	14.03	1007
90.0	41.44013	47.34	2606.2	1158.2	21.66	13.93	1009
95.0	40.28616	48.51	2714.3	1224.9	21.60	13.84	1013
100.0	39.19362	49.62	2822.1	1291.2	21.53	13.75	1017

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

60 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	37.17624	51.66	3036.9	1422.9	21.42	13.61	1027
120.0	35.35709	53.52	3250.6	1553.6	21.33	13.49	1038
130.0	33.70937	55.23	3463.5	1683.5	21.25	13.39	1051
140.0	32.21030	56.80	3675.6	1812.8	21.18	13.31	1064
150.0	30.84069	58.26	3887.2	1941.7	21.13	13.24	1078
160.0	29.58438	59.62	4098.3	2070.2	21.09	13.19	1091
170.0	28.42773	60.90	4309.1	2198.4	21.06	13.14	1105
180.0	27.35922	62.10	4519.5	2326.4	21.03	13.10	1119
190.0	26.36901	63.24	4729.7	2454.3	21.01	13.07	1133
200.0	25.44872	64.32	4939.7	2582.0	20.99	13.04	1146
210.0	24.59111	65.34	5149.5	2709.5	20.97	13.01	1160
220.0	23.78992	66.32	5359.2	2837.0	20.96	12.99	1173
230.0	23.03972	67.25	5568.7	2964.4	20.95	12.97	1186
240.0	22.33575	68.14	5778.1	3091.7	20.93	12.96	1199
250.0	21.67383	68.99	5987.4	3219.0	20.92	12.94	1212
260.0	21.05027	69.81	6196.6	3346.2	20.92	12.93	1225
270.0	20.46182	70.60	6405.7	3473.3	20.91	12.91	1238
280.0	19.90558	71.36	6614.7	3600.4	20.90	12.90	1250
290.0	19.37895	72.10	6823.7	3727.4	20.89	12.89	1263
300.0	18.87962	72.80	7032.5	3854.4	20.88	12.88	1275
310.0	18.40552	73.49	7241.3	3981.3	20.88	12.88	1288
320.0	17.95476	74.15	7450.1	4108.2	20.87	12.87	1300
330.0	17.52567	74.79	7658.7	4235.1	20.86	12.86	1312
340.0	17.11670	75.42	7867.3	4361.9	20.86	12.85	1324
350.0	16.72647	76.02	8075.9	4488.7	20.85	12.85	1336
360.0	16.35372	76.61	8284.4	4615.4	20.85	12.84	1348
370.0	15.99729	77.18	8492.8	4742.1	20.84	12.84	1359
380.0	15.65613	77.74	8701.2	4868.8	20.84	12.83	1371
390.0	15.32927	78.28	8909.6	4995.4	20.83	12.83	1383
400.0	15.01583	78.80	9117.9	5122.0	20.83	12.82	1394
420.0	14.42603	79.82	9534.4	5375.1	20.82	12.81	1417
440.0	13.88095	80.79	9950.7	5628.1	20.81	12.81	1439
460.0	13.37568	81.71	10366.8	5881.0	20.80	12.80	1461
480.0	12.90600	82.60	10782.9	6133.7	20.80	12.79	1483
500.0	12.46825	83.45	11198.7	6386.4	20.79	12.79	1504
550.0	11.49387	85.43	12238.0	7017.7	20.78	12.77	1556
600.0	10.66093	87.24	13276.6	7648.5	20.77	12.76	1607
650.0	9.94064	88.90	14314.8	8278.8	20.76	12.75	1657
700.0	9.31154	90.44	15352.6	8908.8	20.75	12.74	1705
750.0	8.75731	91.87	16390.0	9538.4	20.75	12.73	1752
800.0	8.26532	93.21	17427.3	10167.8	20.74	12.73	1797
850.0	7.82561	94.46	18464.3	10796.9	20.74	12.72	1842
900.0	7.43027	95.65	19501.1	11425.9	20.74	12.71	1886
950.0	7.07290	96.77	20537.9	12054.6	20.73	12.71	1929
1000.0	6.74826	97.83	21574.5	12683.1	20.73	12.70	1970
1100.0	6.18072	99.81	23647.6	13939.8	20.73	12.70	2052
1200.0	5.70106	101.61	25720.6	15195.9	20.73	12.69	2130
1300.0	5.29032	103.27	27793.4	16451.7	20.73	12.68	2206
1400.0	4.93466	104.81	29866.3	17707.0	20.73	12.68	2280
1500.0	4.62369	106.24	31939.2	18962.2	20.73	12.67	2351

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

80 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
13.0	73.92244	10.41	1337.9	255.6	16.91	10.45	1206
14.0	73.15534	11.55	1353.3	259.7	14.23	9.41	1217
15.0	72.52571	12.48	1366.8	263.7	12.99	8.97	1225
16.0	71.97596	13.30	1379.5	268.0	12.48	8.87	1230
17.0	71.47627	14.05	1391.9	272.6	12.38	8.97	1234
18.0	71.00954	14.77	1404.3	277.7	12.53	9.21	1237
19.0	70.56536	15.45	1417.0	283.3	12.82	9.52	1239
20.0	70.13710	16.12	1430.0	289.4	13.21	9.88	1241
22.0	69.31243	17.42	1457.3	303.1	14.12	10.63	1242
24.0	68.51516	18.69	1486.5	318.9	15.06	11.38	1241
26.0	67.73584	19.93	1517.6	336.5	15.97	12.06	1239
28.0	66.97001	21.14	1550.4	355.8	16.81	12.67	1235
30.0	66.21562	22.33	1584.7	376.5	17.56	13.19	1230
32.0	65.47182	23.48	1620.5	398.6	18.21	13.64	1224
34.0	64.73831	24.61	1657.5	421.8	18.78	14.01	1218
36.0	64.01507	25.69	1695.6	445.9	19.27	14.33	1212
38.0	63.30216	26.75	1734.6	470.8	19.69	14.58	1205
40.0	62.59968	27.77	1774.3	496.3	20.04	14.79	1198
45.0	60.88947	30.17	1876.3	562.4	20.70	15.13	1181
50.0	59.24494	32.37	1980.9	630.5	21.11	15.29	1164
55.0	57.66499	34.40	2087.1	699.7	21.35	15.33	1150
60.0	56.14775	36.26	2194.2	769.4	21.48	15.29	1137
65.0	54.69097	37.98	2301.8	839.0	21.55	15.21	1126
70.0	53.29233	39.58	2409.6	908.4	21.57	15.09	1117
75.0	51.94955	41.07	2517.5	977.5	21.56	14.97	1111
80.0	50.66047	42.46	2625.2	1046.0	21.54	14.83	1106
85.0	49.42303	43.76	2732.8	1114.1	21.51	14.70	1103
90.0	48.23524	44.99	2840.3	1181.7	21.47	14.57	1101
95.0	47.09522	46.15	2947.6	1248.8	21.44	14.45	1101
100.0	46.00107	47.25	3054.7	1315.5	21.40	14.34	1102

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

80 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	43.94307	49.29	3268.3	1447.8	21.34	14.13	1106
120.0	42.04672	51.14	3481.4	1578.7	21.28	13.95	1114
130.0	40.29786	52.84	3693.9	1708.6	21.23	13.80	1124
140.0	38.68296	54.41	3906.0	1837.8	21.19	13.67	1136
150.0	37.18930	55.87	4117.6	1966.4	21.15	13.57	1148
160.0	35.80516	57.24	4329.0	2094.6	21.12	13.48	1161
170.0	34.51986	58.52	4540.0	2222.5	21.09	13.40	1175
180.0	33.32380	59.72	4750.9	2350.1	21.07	13.34	1188
190.0	32.20840	60.86	4961.5	2477.6	21.05	13.28	1202
200.0	31.16600	61.94	5171.9	2604.9	21.03	13.24	1216
210.0	30.18982	62.97	5382.1	2732.2	21.02	13.20	1229
220.0	29.27382	63.94	5592.2	2859.3	21.00	13.16	1243
230.0	28.41263	64.88	5802.2	2986.5	20.99	13.13	1256
240.0	27.60150	65.77	6012.0	3113.6	20.98	13.11	1269
250.0	26.83618	66.63	6221.8	3240.6	20.97	13.08	1282
260.0	26.11287	67.45	6431.4	3367.7	20.96	13.06	1295
270.0	25.42819	68.24	6640.9	3494.7	20.95	13.05	1307
280.0	24.77910	69.00	6850.3	3621.7	20.94	13.03	1320
290.0	24.16288	69.74	7059.7	3748.7	20.93	13.01	1332
300.0	23.57706	70.45	7268.9	3875.7	20.92	13.00	1344
310.0	23.01943	71.13	7478.1	4002.7	20.91	12.99	1356
320.0	22.48798	71.80	7687.2	4129.6	20.91	12.98	1368
330.0	21.98088	72.44	7896.2	4256.6	20.90	12.97	1380
340.0	21.49648	73.06	8105.2	4383.5	20.89	12.96	1392
350.0	21.03327	73.67	8314.1	4510.5	20.89	12.95	1403
360.0	20.58988	74.26	8522.9	4637.4	20.88	12.94	1414
370.0	20.16504	74.83	8731.6	4764.3	20.87	12.93	1426
380.0	19.75760	75.38	8940.3	4891.1	20.87	12.93	1437
390.0	19.36650	75.93	9149.0	5018.0	20.86	12.92	1448
400.0	18.99077	76.45	9357.5	5144.8	20.86	12.91	1459
420.0	18.28188	77.47	9774.5	5398.5	20.84	12.90	1481
440.0	17.62453	78.44	10191.3	5652.1	20.83	12.89	1502
460.0	17.01325	79.37	10607.9	5905.6	20.83	12.88	1523
480.0	16.44331	80.25	11024.3	6159.0	20.82	12.88	1544
500.0	15.91060	81.10	11440.6	6412.4	20.81	12.87	1564
550.0	14.71945	83.09	12480.6	7045.5	20.79	12.85	1614
600.0	13.69510	84.89	13519.8	7678.1	20.78	12.84	1662
650.0	12.80457	86.56	14558.3	8310.4	20.77	12.83	1709
700.0	12.02311	88.09	15596.3	8942.3	20.76	12.82	1755
750.0	11.33173	89.53	16633.9	9573.9	20.75	12.81	1800
800.0	10.71563	90.87	17671.1	10205.1	20.74	12.80	1843
850.0	10.16310	92.12	18707.9	10836.1	20.74	12.79	1886
900.0	9.66476	93.31	19744.6	11466.8	20.73	12.79	1928
950.0	9.21297	94.43	20781.0	12097.3	20.73	12.78	1969
1000.0	8.80150	95.49	21817.2	12727.6	20.72	12.77	2009
1100.0	8.07962	97.47	23889.4	13987.7	20.72	12.76	2088
1200.0	7.46697	99.27	25961.2	15247.1	20.72	12.75	2163
1300.0	6.94049	100.93	28032.8	16505.9	20.72	12.75	2237
1400.0	6.48317	102.46	30104.3	17764.3	20.72	12.74	2308
1500.0	6.08223	103.89	32175.8	19022.4	20.71	12.73	2377

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

100 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
14.0	78.47146	8.27	1571.5	297.1	27.40	13.12	1340
15.0	77.35270	9.88	1594.7	301.9	20.18	11.18	1348
16.0	76.51779	11.06	1613.1	306.2	16.98	10.25	1353
17.0	75.83312	12.04	1629.2	310.5	15.40	9.84	1355
18.0	75.23962	12.90	1644.2	315.1	14.63	9.75	1356
19.0	74.70604	13.68	1658.6	320.0	14.33	9.84	1356
20.0	74.21407	14.41	1672.9	325.4	14.30	10.05	1356
22.0	73.31294	15.79	1701.8	337.8	14.69	10.66	1355
24.0	72.48306	17.10	1731.9	352.2	15.36	11.36	1352
26.0	71.69886	18.35	1763.3	368.6	16.11	12.06	1349
28.0	70.94691	19.58	1796.3	386.8	16.85	12.71	1345
30.0	70.21966	20.76	1830.7	406.6	17.54	13.29	1340
32.0	69.51266	21.91	1866.4	427.8	18.16	13.79	1334
34.0	68.82316	23.03	1903.3	450.3	18.71	14.23	1328
36.0	68.14934	24.11	1941.2	473.8	19.18	14.60	1321
38.0	67.48993	25.16	1980.0	498.2	19.59	14.91	1314
40.0	66.84400	26.18	2019.5	523.5	19.94	15.17	1307
45.0	65.28360	28.56	2120.9	589.1	20.58	15.63	1288
50.0	63.79416	30.75	2224.9	657.3	20.97	15.87	1270
55.0	62.36860	32.76	2330.3	726.9	21.19	15.98	1252
60.0	61.00082	34.61	2436.6	797.2	21.31	15.99	1236
65.0	59.68544	36.32	2543.3	867.8	21.35	15.93	1221
70.0	58.41778	37.90	2650.0	938.1	21.34	15.83	1208
75.0	57.19387	39.38	2756.7	1008.2	21.32	15.71	1197
80.0	56.01035	40.75	2863.1	1077.7	21.28	15.57	1188
85.0	54.86447	42.04	2969.4	1146.7	21.24	15.42	1180
90.0	53.75402	43.25	3075.5	1215.1	21.20	15.27	1174
95.0	52.67719	44.40	3181.4	1283.0	21.16	15.13	1170
100.0	51.63257	45.48	3287.1	1350.3	21.13	14.99	1167

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

100 MEGA-NEWTONS/METER SQUARED ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	49.63549	47.49	3498.2	1483.5	21.08	14.73	1165
120.0	47.75567	49.33	3708.9	1614.8	21.06	14.49	1168
130.0	45.98758	51.01	3919.4	1744.9	21.05	14.29	1174
140.0	44.32610	52.57	4129.9	1873.8	21.04	14.11	1183
150.0	42.76597	54.02	4340.3	2001.9	21.04	13.96	1193
160.0	41.30163	55.38	4550.8	2129.5	21.05	13.83	1206
170.0	39.92724	56.66	4761.2	2256.6	21.05	13.72	1219
180.0	38.63684	57.86	4971.7	2383.5	21.05	13.63	1233
190.0	37.42453	59.00	5182.2	2510.1	21.05	13.54	1247
200.0	36.28457	60.08	5392.7	2636.6	21.05	13.48	1261
210.0	35.21149	61.10	5603.2	2763.1	21.04	13.42	1276
220.0	34.20015	62.08	5813.6	2889.6	21.04	13.36	1290
230.0	33.24578	63.02	6024.0	3016.0	21.04	13.32	1304
240.0	32.34397	63.91	6234.3	3142.4	21.03	13.28	1318
250.0	31.49069	64.77	6444.5	3268.9	21.02	13.24	1332
260.0	30.68225	65.60	6654.7	3395.4	21.01	13.21	1346
270.0	29.91526	66.39	6864.8	3522.0	21.01	13.19	1359
280.0	29.18667	67.15	7074.9	3648.6	21.00	13.16	1372
290.0	28.49368	67.89	7284.8	3775.2	20.99	13.14	1385
300.0	27.83374	68.60	7494.7	3901.8	20.98	13.12	1398
310.0	27.20454	69.29	7704.5	4028.5	20.97	13.11	1410
320.0	26.60395	69.96	7914.2	4155.2	20.97	13.09	1422
330.0	26.03007	70.60	8123.8	4282.0	20.96	13.08	1435
340.0	25.48111	71.23	8333.3	4408.8	20.95	13.06	1446
350.0	24.95546	71.83	8542.8	4535.6	20.94	13.05	1458
360.0	24.45166	72.42	8752.2	4662.4	20.94	13.04	1470
370.0	23.96834	73.00	8961.5	4789.2	20.93	13.03	1481
380.0	23.50425	73.55	9170.7	4916.1	20.92	13.02	1492
390.0	23.05826	74.10	9379.9	5042.9	20.91	13.01	1503
400.0	22.62929	74.63	9589.0	5169.8	20.91	13.01	1514
420.0	21.81861	75.65	10007.0	5423.6	20.89	12.99	1536
440.0	21.06527	76.62	10424.7	5677.4	20.88	12.98	1557
460.0	20.36326	77.55	10842.1	5931.2	20.87	12.97	1578
480.0	19.70741	78.43	11259.3	6185.0	20.86	12.96	1598
500.0	19.09324	79.29	11676.3	6438.7	20.84	12.95	1618
550.0	17.71558	81.27	12717.9	7073.0	20.82	12.93	1667
600.0	16.52574	83.08	13758.4	7707.1	20.80	12.91	1714
650.0	15.48725	84.75	14798.0	8340.9	20.78	12.90	1759
700.0	14.57262	86.29	15836.8	8974.4	20.77	12.89	1803
750.0	13.76069	87.72	16875.0	9607.7	20.76	12.88	1846
800.0	13.03491	89.06	17912.6	10240.6	20.75	12.87	1888
850.0	12.38214	90.31	18949.7	10873.3	20.74	12.86	1930
900.0	11.79182	91.50	19986.5	11505.8	20.73	12.85	1970
950.0	11.25532	92.62	21022.9	12138.0	20.73	12.85	2010
1000.0	10.76556	93.68	22059.1	12769.9	20.72	12.84	2048
1100.0	9.90369	95.66	24130.8	14033.3	20.71	12.83	2124
1200.0	9.16949	97.46	26201.9	15295.9	20.71	12.82	2197
1300.0	8.53646	99.12	28272.7	16557.9	20.71	12.81	2268
1400.0	7.98501	100.65	30343.1	17819.3	20.70	12.80	2337
1500.0	7.50030	102.08	32413.5	19080.3	20.70	12.79	2405

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TABLE 11

Provisional Thermodynamic Properties for Helium-4
(pressure in atmospheres)

The number of significant figures given in the tables of properties is not justified on the basis of the uncertainty of the data, but is presented to maintain internal consistency.

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.01 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.0	0.06171	59.73	99.8	83.4	21.14	12.54	83
2.5	0.04912	64.42	110.3	89.7	20.98	12.51	93
3.0	0.04083	68.24	120.8	96.0	20.90	12.49	102
3.5	0.03494	71.46	131.3	102.3	20.87	12.48	110
4.0	0.03055	74.24	141.7	108.5	20.84	12.47	118
4.5	0.02714	76.70	152.1	114.8	20.83	12.47	125
5.0	0.02441	78.89	162.5	121.0	20.82	12.47	131
5.5	0.02219	80.88	172.9	127.2	20.81	12.47	138
6.0	0.02033	82.69	183.3	133.5	20.81	12.47	144
6.5	0.01877	84.35	193.7	139.7	20.81	12.47	150
7.0	0.01742	85.89	204.1	146.0	20.80	12.47	156
7.5	0.01626	87.33	214.5	152.2	20.80	12.47	161
8.0	0.01524	88.67	224.9	158.4	20.80	12.47	166
8.5	0.01434	89.93	235.3	164.7	20.80	12.47	172
9.0	0.01355	91.12	245.7	170.9	20.80	12.47	176
9.5	0.01283	92.25	256.1	177.2	20.80	12.47	181
10.0	0.01219	93.31	266.5	183.4	20.79	12.47	186
11.0	0.01108	95.29	287.3	195.9	20.79	12.47	195
12.0	0.01016	97.10	308.1	208.3	20.79	12.47	204
13.0	0.00938	98.77	328.9	220.8	20.79	12.47	212
14.0	0.00871	100.31	349.7	233.3	20.79	12.47	220
15.0	0.00813	101.74	370.5	245.8	20.79	12.47	228
16.0	0.00762	103.08	391.3	258.2	20.79	12.47	235
17.0	0.00717	104.34	412.1	270.7	20.79	12.47	243
18.0	0.00677	105.53	432.8	283.2	20.79	12.47	250
19.0	0.00641	106.66	453.6	295.7	20.79	12.47	256
20.0	0.00609	107.72	474.4	308.1	20.79	12.47	263
22.0	0.00554	109.70	516.0	333.1	20.79	12.47	276
24.0	0.00508	111.51	557.6	358.0	20.79	12.47	288
26.0	0.00469	113.18	599.1	383.0	20.79	12.47	300
28.0	0.00435	114.72	640.7	407.9	20.79	12.47	311
30.0	0.00406	116.15	682.3	432.8	20.79	12.47	322
32.0	0.00381	117.49	723.9	457.8	20.79	12.47	333
34.0	0.00358	118.75	765.4	482.7	20.79	12.47	343
36.0	0.00339	119.94	807.0	507.7	20.79	12.47	353
38.0	0.00321	121.07	848.6	532.6	20.79	12.47	363
40.0	0.00305	122.13	890.2	557.6	20.79	12.47	372
45.0	0.00271	124.58	994.1	619.9	20.79	12.47	395
50.0	0.00244	126.77	1098.0	682.3	20.79	12.47	416
55.0	0.00222	128.75	1201.9	744.6	20.79	12.47	436
60.0	0.00203	130.56	1305.9	807.0	20.79	12.47	456
65.0	0.00187	132.22	1409.8	869.3	20.79	12.47	474
70.0	0.00174	133.76	1513.7	931.7	20.79	12.47	492
75.0	0.00162	135.20	1617.7	994.1	20.79	12.47	510
80.0	0.00152	136.54	1721.6	1056.4	20.79	12.47	526
85.0	0.00143	137.80	1825.5	1118.8	20.79	12.47	542
90.0	0.00135	138.99	1929.4	1181.1	20.79	12.47	558
95.0	0.00128	140.11	2033.4	1243.5	20.79	12.47	573
100.0	0.00122	141.18	2137.3	1305.8	20.79	12.47	588

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.01 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.00111	143.16	2345.2	1430.6	20.79	12.47	617
120.0	0.00102	144.97	2553.0	1555.3	20.79	12.47	645
130.0	0.00094	146.63	2760.9	1680.0	20.79	12.47	671
140.0	0.00087	148.17	2968.7	1804.7	20.79	12.47	696
150.0	0.00081	149.61	3176.6	1929.4	20.79	12.47	721
160.0	0.00076	150.95	3384.4	2054.1	20.79	12.47	744
170.0	0.00072	152.21	3592.3	2178.8	20.79	12.47	767
180.0	0.00068	153.40	3800.2	2303.5	20.79	12.47	789
190.0	0.00064	154.52	4008.0	2428.2	20.79	12.47	811
200.0	0.00061	155.59	4215.9	2553.0	20.79	12.47	832
210.0	0.00058	156.60	4423.7	2677.7	20.79	12.47	853
220.0	0.00055	157.57	4631.6	2802.4	20.79	12.47	873
230.0	0.00053	158.49	4839.4	2927.1	20.79	12.47	892
240.0	0.00051	159.37	5047.3	3051.8	20.79	12.47	911
250.0	0.00049	160.22	5255.2	3176.5	20.79	12.47	930
260.0	0.00047	161.04	5463.0	3301.2	20.79	12.47	949
270.0	0.00045	161.82	5670.9	3425.9	20.79	12.47	967
280.0	0.00044	162.58	5878.7	3550.6	20.79	12.47	985
290.0	0.00042	163.31	6086.6	3675.4	20.79	12.47	1002
300.0	0.00041	164.01	6294.4	3800.1	20.79	12.47	1019
310.0	0.00039	164.69	6502.3	3924.8	20.79	12.47	1036
320.0	0.00038	165.35	6710.2	4049.5	20.79	12.47	1052
330.0	0.00037	165.99	6918.0	4174.2	20.79	12.47	1069
340.0	0.00036	166.61	7125.9	4298.9	20.79	12.47	1085
350.0	0.00035	167.22	7333.7	4423.6	20.79	12.47	1101
360.0	0.00034	167.80	7541.6	4548.3	20.79	12.47	1116
370.0	0.00033	168.37	7749.4	4673.1	20.79	12.47	1132
380.0	0.00032	168.93	7957.3	4797.8	20.79	12.47	1147
390.0	0.00031	169.47	8165.2	4922.5	20.79	12.47	1162
400.0	0.00030	169.99	8373.0	5047.2	20.79	12.47	1177
420.0	0.00029	171.01	8788.7	5296.6	20.79	12.47	1206
440.0	0.00028	171.97	9204.4	5546.0	20.79	12.47	1234
460.0	0.00026	172.90	9620.2	5795.5	20.79	12.47	1262
480.0	0.00025	173.78	10035.9	6044.9	20.79	12.47	1289
500.0	0.00024	174.63	10451.6	6294.3	20.79	12.47	1316
550.0	0.00022	176.61	11490.9	6917.9	20.79	12.47	1380
600.0	0.00020	178.42	12530.1	7541.4	20.79	12.47	1441
650.0	0.00019	180.08	13569.4	8165.0	20.79	12.47	1500
700.0	0.00017	181.62	14608.7	8788.5	20.79	12.47	1557
750.0	0.00016	183.06	15648.0	9412.1	20.79	12.47	1611
800.0	0.00015	184.40	16687.3	10035.6	20.79	12.47	1664
850.0	0.00014	185.66	17726.6	10659.2	20.79	12.47	1715
900.0	0.00014	186.85	18765.8	11282.8	20.79	12.47	1765
950.0	0.00013	187.97	19805.1	11906.3	20.79	12.47	1813
1000.0	0.00012	189.04	20844.4	12529.9	20.79	12.47	1861
1100.0	0.00011	191.02	22923.0	13777.0	20.79	12.47	1951
1200.0	0.00010	192.83	25001.5	15024.1	20.79	12.47	2038
1300.0	0.00009	194.49	27080.1	16271.2	20.79	12.47	2121
1400.0	0.00009	196.03	29158.7	17518.3	20.79	12.47	2201
1500.0	0.00008	197.47	31237.3	18765.4	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.05 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
* 2.180	36.51119	6.76	13.2	13.1	8.73	8.48	209
* 2.180	0.29539	47.68	101.8	84.7	22.36	12.76	84
2.5	0.25352	50.71	108.9	88.9	21.83	12.65	91
3.0	0.20839	54.65	119.7	95.4	21.41	12.55	100
3.5	0.17726	57.93	130.3	101.7	21.20	12.51	109
4.0	0.15438	60.75	140.9	108.1	21.08	12.49	117
4.5	0.13680	63.23	151.4	114.4	21.01	12.48	124
5.0	0.12285	65.44	161.9	120.7	20.96	12.47	131
5.5	0.11150	67.44	172.4	126.9	20.93	12.47	138
6.0	0.10209	69.26	182.8	133.2	20.90	12.47	144
6.5	0.09415	70.93	193.3	139.5	20.88	12.47	150
7.0	0.08736	72.48	203.7	145.7	20.87	12.47	155
7.5	0.08149	73.92	214.1	152.0	20.86	12.47	161
8.0	0.07637	75.26	224.6	158.2	20.85	12.47	166
8.5	0.07185	76.53	235.0	164.5	20.84	12.47	171
9.0	0.06783	77.72	245.4	170.7	20.84	12.47	176
9.5	0.06425	78.85	255.8	177.0	20.83	12.47	181
10.0	0.06102	79.91	266.3	183.2	20.83	12.47	186
11.0	0.05545	81.90	287.1	195.7	20.82	12.47	195
12.0	0.05082	83.71	307.9	208.2	20.82	12.47	204
13.0	0.04690	85.38	328.7	220.7	20.81	12.47	212
14.0	0.04355	86.92	349.5	233.2	20.81	12.47	220
15.0	0.04064	88.35	370.3	245.7	20.81	12.47	228
16.0	0.03809	89.70	391.1	258.1	20.80	12.47	235
17.0	0.03585	90.96	411.9	270.6	20.80	12.47	243
18.0	0.03386	92.15	432.7	283.1	20.80	12.47	250
19.0	0.03207	93.27	453.5	295.6	20.80	12.47	256
20.0	0.03047	94.34	474.3	308.0	20.80	12.47	263
22.0	0.02770	96.32	515.9	333.0	20.80	12.47	276
24.0	0.02539	98.13	557.5	358.0	20.79	12.47	288
26.0	0.02343	99.79	599.1	382.9	20.79	12.47	300
28.0	0.02176	101.33	640.7	407.8	20.79	12.47	311
30.0	0.02031	102.77	682.3	432.8	20.79	12.47	322
32.0	0.01904	104.11	723.8	457.7	20.79	12.47	333
34.0	0.01792	105.37	765.4	482.7	20.79	12.47	343
36.0	0.01692	106.56	807.0	507.6	20.79	12.47	353
38.0	0.01603	107.68	848.6	532.6	20.79	12.47	363
40.0	0.01523	108.75	890.1	557.5	20.79	12.47	372
45.0	0.01354	111.20	994.1	619.9	20.79	12.47	395
50.0	0.01219	113.39	1098.0	682.3	20.79	12.47	416
55.0	0.01108	115.37	1202.0	744.6	20.79	12.47	436
60.0	0.01015	117.18	1305.9	807.0	20.79	12.47	456
65.0	0.00937	118.84	1409.8	869.3	20.79	12.47	474
70.0	0.00870	120.38	1513.8	931.7	20.79	12.47	492
75.0	0.00812	121.82	1617.7	994.0	20.79	12.47	510
80.0	0.00762	123.16	1721.6	1056.4	20.79	12.47	526
85.0	0.00717	124.42	1825.6	1118.8	20.79	12.47	542
90.0	0.00677	125.61	1929.5	1181.1	20.79	12.47	558
95.0	0.00641	126.73	2033.4	1243.5	20.79	12.47	573
100.0	0.00609	127.80	2137.3	1305.8	20.79	12.47	588

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.05 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.00554	129.78	2345.2	1430.5	20.79	12.47	617
120.0	0.00508	131.59	2553.1	1555.3	20.79	12.47	645
130.0	0.00469	133.25	2760.9	1680.0	20.79	12.47	671
140.0	0.00435	134.79	2968.8	1804.7	20.79	12.47	696
150.0	0.00406	136.22	3176.6	1929.4	20.79	12.47	721
160.0	0.00381	137.57	3384.5	2054.1	20.79	12.47	744
170.0	0.00358	138.83	3592.4	2178.8	20.79	12.47	767
180.0	0.00339	140.01	3800.2	2303.5	20.79	12.47	789
190.0	0.00321	141.14	4008.1	2428.2	20.79	12.47	811
200.0	0.00305	142.20	4215.9	2553.0	20.79	12.47	832
210.0	0.00290	143.22	4423.8	2677.7	20.79	12.47	853
220.0	0.00277	144.18	4631.6	2802.4	20.79	12.47	873
230.0	0.00265	145.11	4839.5	2927.1	20.79	12.47	892
240.0	0.00254	145.99	5047.4	3051.8	20.79	12.47	911
250.0	0.00244	146.84	5255.2	3176.5	20.79	12.47	930
260.0	0.00234	147.66	5463.1	3301.2	20.79	12.47	949
270.0	0.00226	148.44	5670.9	3425.9	20.79	12.47	967
280.0	0.00218	149.20	5878.8	3550.7	20.79	12.47	985
290.0	0.00210	149.93	6086.6	3675.4	20.79	12.47	1002
300.0	0.00203	150.63	6294.5	3800.1	20.79	12.47	1019
310.0	0.00197	151.31	6502.4	3924.8	20.79	12.47	1036
320.0	0.00190	151.97	6710.2	4049.5	20.79	12.47	1052
330.0	0.00185	152.61	6918.1	4174.2	20.79	12.47	1069
340.0	0.00179	153.23	7125.9	4298.9	20.79	12.47	1085
350.0	0.00174	153.84	7333.8	4423.6	20.79	12.47	1101
360.0	0.00169	154.42	7541.6	4548.3	20.79	12.47	1116
370.0	0.00165	154.99	7749.5	4673.1	20.79	12.47	1132
380.0	0.00160	155.55	7957.4	4797.8	20.79	12.47	1147
390.0	0.00156	156.09	8165.2	4922.5	20.79	12.47	1162
400.0	0.00152	156.61	8373.1	5047.2	20.79	12.47	1177
420.0	0.00145	157.63	8788.8	5296.6	20.79	12.47	1206
440.0	0.00138	158.59	9204.5	5546.0	20.79	12.47	1234
460.0	0.00132	159.52	9620.2	5795.5	20.79	12.47	1262
480.0	0.00127	160.40	10035.9	6044.9	20.79	12.47	1289
500.0	0.00122	161.25	10451.6	6294.3	20.79	12.47	1316
550.0	0.00111	163.23	11490.9	6917.9	20.79	12.47	1380
600.0	0.00102	165.04	12530.2	7541.4	20.79	12.47	1441
650.0	0.00094	166.70	13569.5	8165.0	20.79	12.47	1500
700.0	0.00087	168.24	14608.8	8788.5	20.79	12.47	1557
750.0	0.00081	169.68	15648.0	9412.1	20.79	12.47	1611
800.0	0.00076	171.02	16687.3	10035.7	20.79	12.47	1664
850.0	0.00072	172.28	17726.6	10659.2	20.79	12.47	1715
900.0	0.00068	173.47	18765.9	11282.8	20.79	12.47	1765
950.0	0.00064	174.59	19805.2	11906.3	20.79	12.47	1813
1000.0	0.00061	175.66	20844.5	12529.9	20.79	12.47	1861
1100.0	0.00055	177.64	22923.0	13777.0	20.79	12.47	1951
1200.0	0.00051	179.45	25001.6	15024.1	20.79	12.47	2038
1300.0	0.00047	181.11	27080.2	16271.2	20.79	12.47	2121
1400.0	0.00044	182.65	29158.7	17518.3	20.79	12.47	2201
1500.0	0.00041	184.08	31237.3	18765.5	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.1 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
* 2.496	36.14308	7.92	16.0	15.8	8.73	8.00	208
* 2.496	0.53105	44.45	106.8	87.7	23.15	12.84	89
2.5	0.53004	44.49	106.9	87.8	23.14	12.84	89
3.0	0.42847	48.61	118.2	94.6	22.13	12.64	99
3.5	0.36132	51.98	129.1	101.1	21.65	12.55	108
4.0	0.31305	54.85	139.9	107.5	21.40	12.51	116
4.5	0.27647	57.36	150.5	113.9	21.24	12.49	123
5.0	0.24771	59.59	161.1	120.2	21.14	12.48	131
5.5	0.22447	61.61	171.7	126.5	21.07	12.47	137
6.0	0.20527	63.44	182.2	132.9	21.02	12.47	143
6.5	0.18913	65.12	192.7	139.1	20.99	12.47	149
7.0	0.17537	66.67	203.2	145.4	20.96	12.47	155
7.5	0.16349	68.12	213.7	151.7	20.94	12.47	161
8.0	0.15313	69.47	224.1	158.0	20.92	12.47	166
8.5	0.14401	70.74	234.6	164.2	20.90	12.47	171
9.0	0.13593	71.93	245.0	170.5	20.89	12.47	176
9.5	0.12871	73.06	255.5	176.8	20.88	12.47	181
10.0	0.12222	74.13	265.9	183.0	20.87	12.47	186
11.0	0.11103	76.12	286.8	195.5	20.86	12.47	195
12.0	0.10173	77.93	307.6	208.0	20.85	12.47	204
13.0	0.09386	79.60	328.5	220.5	20.84	12.47	212
14.0	0.08713	81.14	349.3	233.0	20.83	12.47	220
15.0	0.08131	82.58	370.1	245.5	20.82	12.47	228
16.0	0.07621	83.93	391.0	258.0	20.82	12.47	235
17.0	0.07172	85.19	411.8	270.5	20.82	12.47	243
18.0	0.06773	86.38	432.6	283.0	20.81	12.47	250
19.0	0.06415	87.50	453.4	295.5	20.81	12.47	257
20.0	0.06094	88.57	474.2	307.9	20.81	12.47	263
22.0	0.05540	90.55	515.8	332.9	20.80	12.47	276
24.0	0.05078	92.36	557.4	357.9	20.80	12.47	288
26.0	0.04687	94.03	599.0	382.8	20.80	12.47	300
28.0	0.04352	95.57	640.6	407.8	20.80	12.47	311
30.0	0.04062	97.00	682.2	432.7	20.80	12.47	322
32.0	0.03808	98.35	723.8	457.7	20.79	12.47	333
34.0	0.03584	99.61	765.4	482.6	20.79	12.47	343
36.0	0.03384	100.79	807.0	507.6	20.79	12.47	353
38.0	0.03206	101.92	848.6	532.5	20.79	12.47	363
40.0	0.03046	102.99	890.1	557.5	20.79	12.47	372
45.0	0.02708	105.43	994.1	619.9	20.79	12.47	395
50.0	0.02437	107.62	1098.0	682.2	20.79	12.47	416
55.0	0.02215	109.61	1202.0	744.6	20.79	12.47	436
60.0	0.02031	111.41	1305.9	806.9	20.79	12.47	456
65.0	0.01875	113.08	1409.9	869.3	20.79	12.47	474
70.0	0.01741	114.62	1513.8	931.7	20.79	12.47	492
75.0	0.01625	116.05	1617.7	994.0	20.79	12.47	510
80.0	0.01523	117.39	1721.7	1056.4	20.79	12.47	526
85.0	0.01434	118.65	1825.6	1118.7	20.79	12.47	543
90.0	0.01354	119.84	1929.5	1181.1	20.79	12.47	558
95.0	0.01283	120.97	2033.5	1243.5	20.79	12.47	574
100.0	0.01219	122.03	2137.4	1305.8	20.79	12.47	588

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.1 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.01108	124.01	2345.3	1430.5	20.79	12.47	617
120.0	0.01015	125.82	2553.1	1555.3	20.79	12.47	645
130.0	0.00937	127.49	2761.0	1680.0	20.79	12.47	671
140.0	0.00870	129.03	2968.8	1804.7	20.79	12.47	696
150.0	0.00812	130.46	3176.7	1929.4	20.79	12.47	721
160.0	0.00762	131.80	3384.6	2054.1	20.79	12.47	744
170.0	0.00717	133.06	3592.4	2178.8	20.79	12.47	767
180.0	0.00677	134.25	3800.3	2303.5	20.79	12.47	789
190.0	0.00641	135.37	4008.1	2428.2	20.79	12.47	811
200.0	0.00609	136.44	4216.0	2553.0	20.79	12.47	832
210.0	0.00580	137.45	4423.9	2677.7	20.79	12.47	853
220.0	0.00554	138.42	4631.7	2802.4	20.79	12.47	873
230.0	0.00530	139.35	4839.6	2927.1	20.79	12.47	892
240.0	0.00508	140.23	5047.4	3051.8	20.79	12.47	912
250.0	0.00487	141.08	5255.3	3176.5	20.79	12.47	930
260.0	0.00469	141.89	5463.1	3301.2	20.79	12.47	949
270.0	0.00451	142.68	5671.0	3425.9	20.79	12.47	967
280.0	0.00435	143.43	5878.9	3550.7	20.79	12.47	985
290.0	0.00420	144.16	6086.7	3675.4	20.79	12.47	1002
300.0	0.00406	144.87	6294.6	3800.1	20.79	12.47	1019
310.0	0.00393	145.55	6502.4	3924.8	20.79	12.47	1036
320.0	0.00381	146.21	6710.3	4049.5	20.79	12.47	1053
330.0	0.00369	146.85	6918.1	4174.2	20.79	12.47	1069
340.0	0.00358	147.47	7126.0	4298.9	20.79	12.47	1085
350.0	0.00348	148.07	7333.8	4423.6	20.79	12.47	1101
360.0	0.00339	148.66	7541.7	4548.4	20.79	12.47	1116
370.0	0.00329	149.23	7749.6	4673.1	20.79	12.47	1132
380.0	0.00321	149.78	7957.4	4797.8	20.79	12.47	1147
390.0	0.00312	150.32	8165.3	4922.5	20.79	12.47	1162
400.0	0.00305	150.85	8373.1	5047.2	20.79	12.47	1177
420.0	0.00290	151.86	8788.8	5296.6	20.79	12.47	1206
440.0	0.00277	152.83	9204.6	5546.0	20.79	12.47	1234
460.0	0.00265	153.75	9620.3	5795.5	20.79	12.47	1262
480.0	0.00254	154.64	10036.0	6044.9	20.79	12.47	1289
500.0	0.00244	155.49	10451.7	6294.3	20.79	12.47	1316
550.0	0.00222	157.47	11491.0	6917.9	20.79	12.47	1380
600.0	0.00203	159.28	12530.3	7541.4	20.79	12.47	1441
650.0	0.00187	160.94	13569.5	8165.0	20.79	12.47	1500
700.0	0.00174	162.48	14608.8	8788.6	20.79	12.47	1557
750.0	0.00162	163.91	15648.1	9412.1	20.79	12.47	1611
800.0	0.00152	165.26	16687.4	10035.7	20.79	12.47	1664
850.0	0.00143	166.52	17726.7	10659.2	20.79	12.47	1715
900.0	0.00135	167.70	18766.0	11282.8	20.79	12.47	1765
950.0	0.00128	168.83	19805.2	11906.3	20.79	12.47	1813
1000.0	0.00122	169.89	20844.5	12529.9	20.79	12.47	1861
1100.0	0.00111	171.88	22923.1	13777.0	20.79	12.47	1951
1200.0	0.00102	173.68	25001.7	15024.1	20.79	12.47	2038
1300.0	0.00094	175.35	27080.2	16271.2	20.79	12.47	2121
1400.0	0.00087	176.89	29158.8	17518.4	20.79	12.47	2201
1500.0	0.00081	178.32	31237.4	18765.5	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.2 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.20032	7.92	16.3	15.8	8.70	7.97	210
* 2.889	35.47110	9.25	19.9	19.4	9.87	8.30	204
* 2.889	0.95923	41.31	112.3	91.2	24.41	12.89	93
3.0	0.91257	42.21	115.0	92.8	23.97	12.82	95
3.5	0.75306	45.80	126.6	99.7	22.73	12.63	105
4.0	0.64471	48.79	137.8	106.4	22.11	12.54	114
4.5	0.56517	51.37	148.8	112.9	21.75	12.50	122
5.0	0.50387	53.65	159.6	119.4	21.53	12.48	129
5.5	0.45499	55.70	170.3	125.8	21.38	12.47	136
6.0	0.41501	57.55	181.0	132.1	21.27	12.47	143
6.5	0.38164	59.25	191.6	138.5	21.20	12.46	149
7.0	0.35334	60.82	202.2	144.8	21.14	12.46	155
7.5	0.32901	62.28	212.7	151.1	21.09	12.46	160
8.0	0.30787	63.64	223.3	157.4	21.05	12.47	166
8.5	0.28932	64.91	233.8	163.7	21.02	12.47	171
9.0	0.27290	66.11	244.3	170.0	21.00	12.47	176
9.5	0.25827	67.25	254.8	176.3	20.97	12.47	181
10.0	0.24514	68.32	265.3	182.6	20.96	12.47	186
11.0	0.22254	70.32	286.2	195.1	20.93	12.47	195
12.0	0.20379	72.14	307.1	207.7	20.91	12.47	204
13.0	0.18797	73.81	328.0	220.2	20.89	12.47	212
14.0	0.17444	75.36	348.9	232.7	20.87	12.47	220
15.0	0.16274	76.80	369.8	245.2	20.86	12.47	228
16.0	0.15251	78.15	390.6	257.7	20.85	12.47	235
17.0	0.14350	79.41	411.5	270.2	20.85	12.47	243
18.0	0.13549	80.60	432.3	282.7	20.84	12.47	250
19.0	0.12834	81.73	453.1	295.2	20.83	12.47	257
20.0	0.12190	82.80	474.0	307.7	20.83	12.47	263
22.0	0.11079	84.78	515.6	332.7	20.82	12.47	276
24.0	0.10154	86.59	557.3	357.7	20.82	12.47	288
26.0	0.09372	88.26	598.9	382.7	20.81	12.47	300
28.0	0.08702	89.80	640.5	407.6	20.81	12.47	312
30.0	0.08122	91.24	682.1	432.6	20.81	12.47	322
32.0	0.07614	92.58	723.7	457.6	20.80	12.47	333
34.0	0.07166	93.84	765.3	482.5	20.80	12.47	343
36.0	0.06767	95.03	806.9	507.5	20.80	12.47	353
38.0	0.06411	96.15	848.5	532.4	20.80	12.47	363
40.0	0.06091	97.22	890.1	557.4	20.80	12.47	372
45.0	0.05414	99.67	994.1	619.8	20.79	12.47	395
50.0	0.04873	101.86	1098.1	682.2	20.79	12.47	416
55.0	0.04430	103.84	1202.0	744.5	20.79	12.47	437
60.0	0.04061	105.65	1306.0	806.9	20.79	12.47	456
65.0	0.03748	107.31	1409.9	869.3	20.79	12.47	475
70.0	0.03481	108.86	1513.9	931.6	20.79	12.47	492
75.0	0.03249	110.29	1617.8	994.0	20.79	12.47	510
80.0	0.03046	111.63	1721.8	1056.4	20.79	12.47	526
85.0	0.02867	112.89	1825.7	1118.7	20.79	12.47	543
90.0	0.02707	114.08	1929.6	1181.1	20.79	12.47	558
95.0	0.02565	115.20	2033.6	1243.4	20.79	12.47	574
100.0	0.02437	116.27	2137.5	1305.8	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.2 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.02215	118.25	2345.4	1430.5	20.79	12.47	617
120.0	0.02031	120.06	2553.2	1555.2	20.79	12.47	645
130.0	0.01874	121.72	2761.1	1680.0	20.79	12.47	671
140.0	0.01741	123.26	2969.0	1804.7	20.79	12.47	696
150.0	0.01625	124.70	3176.8	1929.4	20.79	12.47	721
160.0	0.01523	126.04	3384.7	2054.1	20.79	12.47	744
170.0	0.01433	127.30	3592.5	2178.8	20.79	12.47	767
180.0	0.01354	128.49	3800.4	2303.5	20.79	12.47	789
190.0	0.01283	129.61	4008.3	2428.3	20.79	12.47	811
200.0	0.01218	130.68	4216.1	2553.0	20.79	12.47	832
210.0	0.01160	131.69	4424.0	2677.7	20.79	12.47	853
220.0	0.01108	132.66	4631.8	2802.4	20.79	12.47	873
230.0	0.01060	133.58	4839.7	2927.1	20.79	12.47	892
240.0	0.01015	134.47	5047.6	3051.8	20.79	12.47	912
250.0	0.00975	135.32	5255.4	3176.5	20.79	12.47	930
260.0	0.00937	136.13	5463.3	3301.2	20.79	12.47	949
270.0	0.00903	136.92	5671.1	3426.0	20.79	12.47	967
280.0	0.00870	137.67	5879.0	3550.7	20.79	12.47	985
290.0	0.00840	138.40	6086.8	3675.4	20.79	12.47	1002
300.0	0.00812	139.11	6294.7	3800.1	20.79	12.47	1019
310.0	0.00786	139.79	6502.6	3924.8	20.79	12.47	1036
320.0	0.00762	140.45	6710.4	4049.5	20.79	12.47	1053
330.0	0.00739	141.09	6918.3	4174.2	20.79	12.47	1069
340.0	0.00717	141.71	7126.1	4298.9	20.79	12.47	1085
350.0	0.00696	142.31	7334.0	4423.7	20.79	12.47	1101
360.0	0.00677	142.90	7541.8	4548.4	20.79	12.47	1116
370.0	0.00659	143.46	7749.7	4673.1	20.79	12.47	1132
380.0	0.00641	144.02	7957.6	4797.8	20.79	12.47	1147
390.0	0.00625	144.56	8165.4	4922.5	20.79	12.47	1162
400.0	0.00609	145.09	8373.3	5047.2	20.79	12.47	1177
420.0	0.00580	146.10	8789.0	5296.6	20.79	12.47	1206
440.0	0.00554	147.07	9204.7	5546.1	20.79	12.47	1234
460.0	0.00530	147.99	9620.4	5795.5	20.79	12.47	1262
480.0	0.00508	148.88	10036.1	6044.9	20.79	12.47	1289
500.0	0.00487	149.72	10451.8	6294.3	20.79	12.47	1316
550.0	0.00443	151.70	11491.1	6917.9	20.79	12.47	1380
600.0	0.00406	153.51	12530.4	7541.5	20.79	12.47	1441
650.0	0.00375	155.18	13569.7	8165.0	20.79	12.47	1500
700.0	0.00348	156.72	14609.0	8788.6	20.79	12.47	1557
750.0	0.00325	158.15	15648.2	9412.1	20.79	12.47	1611
800.0	0.00305	159.49	16687.5	10035.7	20.79	12.47	1664
850.0	0.00287	160.75	17726.8	10659.3	20.79	12.47	1715
900.0	0.00271	161.94	18766.1	11282.8	20.79	12.47	1765
950.0	0.00257	163.06	19805.4	11906.4	20.79	12.47	1813
1000.0	0.00244	164.13	20844.7	12529.9	20.79	12.47	1861
1100.0	0.00222	166.11	22923.2	13777.0	20.79	12.47	1951
1200.0	0.00203	167.92	25001.8	15024.2	20.79	12.47	2038
1300.0	0.00187	169.58	27080.3	16271.3	20.79	12.47	2121
1400.0	0.00174	171.12	29158.9	17518.4	20.79	12.47	2201
1500.0	0.00162	172.56	31237.5	18765.5	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.3 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.26269	7.91	16.6	15.7	8.67	7.94	211
3.0	35.29210	9.61	21.3	20.4	10.24	8.41	203
* 3.163	34.88110	10.17	23.0	22.1	10.92	8.60	199
* 3.163	1.36392	39.46	115.5	93.2	25.58	12.89	95
3.5	1.18370	41.97	123.9	98.2	24.10	12.72	103
4.0	0.99840	45.10	135.6	105.1	22.95	12.58	112
4.5	0.86770	47.76	146.9	111.9	22.33	12.52	121
5.0	0.76931	50.10	158.0	118.5	21.96	12.49	128
5.5	0.69203	52.18	168.9	125.0	21.71	12.47	135
6.0	0.62949	54.06	179.7	131.4	21.54	12.46	142
6.5	0.57769	55.78	190.4	137.8	21.42	12.46	148
7.0	0.53401	57.36	201.1	144.2	21.32	12.46	154
7.5	0.49664	58.83	211.8	150.5	21.25	12.46	160
8.0	0.46428	60.20	222.4	156.9	21.19	12.46	165
8.5	0.43595	61.48	232.9	163.2	21.14	12.46	171
9.0	0.41095	62.69	243.5	169.5	21.10	12.46	176
9.5	0.38870	63.83	254.1	175.8	21.07	12.47	181
10.0	0.36877	64.91	264.6	182.1	21.04	12.47	186
11.0	0.33455	66.91	285.6	194.7	21.00	12.47	195
12.0	0.30620	68.74	306.6	207.3	20.97	12.47	204
13.0	0.28232	70.42	327.5	219.9	20.94	12.47	212
14.0	0.26192	71.97	348.5	232.4	20.92	12.47	220
15.0	0.24429	73.41	369.4	244.9	20.90	12.47	228
16.0	0.22890	74.76	390.3	257.5	20.89	12.47	235
17.0	0.21534	76.02	411.2	270.0	20.88	12.47	243
18.0	0.20330	77.22	432.0	282.5	20.87	12.47	250
19.0	0.19255	78.34	452.9	295.0	20.86	12.47	257
20.0	0.18288	79.41	473.7	307.5	20.85	12.47	263
22.0	0.16619	81.40	515.4	332.5	20.84	12.47	276
24.0	0.15231	83.21	557.1	357.5	20.83	12.47	289
26.0	0.14057	84.88	598.8	382.5	20.83	12.47	300
28.0	0.13051	86.42	640.4	407.5	20.82	12.47	312
30.0	0.12180	87.86	682.0	432.5	20.82	12.47	323
32.0	0.11418	89.20	723.7	457.4	20.81	12.47	333
34.0	0.10746	90.47	765.3	482.4	20.81	12.47	343
36.0	0.10149	91.65	806.9	507.4	20.81	12.47	353
38.0	0.09615	92.78	848.5	532.3	20.80	12.47	363
40.0	0.09134	93.85	890.1	557.3	20.80	12.47	372
45.0	0.08119	96.30	994.1	619.7	20.80	12.47	395
50.0	0.07307	98.49	1098.1	682.1	20.80	12.47	416
55.0	0.06643	100.47	1202.1	744.5	20.79	12.47	437
60.0	0.06090	102.28	1306.0	806.8	20.79	12.47	456
65.0	0.05621	103.94	1410.0	869.2	20.79	12.47	475
70.0	0.05220	105.48	1513.9	931.6	20.79	12.47	493
75.0	0.04872	106.92	1617.9	994.0	20.79	12.47	510
80.0	0.04568	108.26	1721.8	1056.3	20.79	12.47	527
85.0	0.04299	109.52	1825.8	1118.7	20.79	12.47	543
90.0	0.04060	110.71	1929.7	1181.1	20.79	12.47	558
95.0	0.03847	111.83	2033.7	1243.4	20.79	12.47	574
100.0	0.03654	112.90	2137.6	1305.8	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.3 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.03322	114.88	2345.5	1430.5	20.79	12.47	617
120.0	0.03046	116.69	2553.4	1555.2	20.79	12.47	645
130.0	0.02811	118.35	2761.2	1680.0	20.79	12.47	671
140.0	0.02611	119.89	2969.1	1804.7	20.79	12.47	696
150.0	0.02437	121.33	3176.9	1929.4	20.79	12.47	721
160.0	0.02284	122.67	3384.8	2054.1	20.79	12.47	744
170.0	0.02150	123.93	3592.7	2178.8	20.79	12.47	767
180.0	0.02031	125.12	3800.5	2303.5	20.79	12.47	790
190.0	0.01924	126.24	4008.4	2428.3	20.79	12.47	811
200.0	0.01828	127.31	4216.3	2553.0	20.79	12.47	832
210.0	0.01741	128.32	4424.1	2677.7	20.79	12.47	853
220.0	0.01662	129.29	4632.0	2802.4	20.79	12.47	873
230.0	0.01589	130.21	4839.8	2927.1	20.79	12.47	892
240.0	0.01523	131.10	5047.7	3051.8	20.79	12.47	912
250.0	0.01462	131.94	5255.5	3176.5	20.79	12.47	930
260.0	0.01406	132.76	5463.4	3301.3	20.79	12.47	949
270.0	0.01354	133.54	5671.3	3426.0	20.79	12.47	967
280.0	0.01306	134.30	5879.1	3550.7	20.79	12.47	985
290.0	0.01261	135.03	6087.0	3675.4	20.79	12.47	1002
300.0	0.01219	135.73	6294.8	3800.1	20.79	12.47	1019
310.0	0.01179	136.42	6502.7	3924.8	20.79	12.47	1036
320.0	0.01142	137.08	6710.5	4049.5	20.79	12.47	1053
330.0	0.01108	137.72	6918.4	4174.2	20.79	12.47	1069
340.0	0.01075	138.34	7126.3	4299.0	20.79	12.47	1085
350.0	0.01044	138.94	7334.1	4423.7	20.79	12.47	1101
360.0	0.01015	139.52	7542.0	4548.4	20.79	12.47	1116
370.0	0.00988	140.09	7749.8	4673.1	20.79	12.47	1132
380.0	0.00962	140.65	7957.7	4797.8	20.79	12.47	1147
390.0	0.00937	141.19	8165.5	4922.5	20.79	12.47	1162
400.0	0.00914	141.71	8373.4	5047.2	20.79	12.47	1177
420.0	0.00870	142.73	8789.1	5296.7	20.79	12.47	1206
440.0	0.00831	143.70	9204.8	5546.1	20.79	12.47	1234
460.0	0.00795	144.62	9620.5	5795.5	20.79	12.47	1262
480.0	0.00762	145.50	10036.3	6044.9	20.79	12.47	1289
500.0	0.00731	146.35	10452.0	6294.4	20.79	12.47	1316
550.0	0.00665	148.33	11491.2	6917.9	20.79	12.47	1380
600.0	0.00609	150.14	12530.5	7541.5	20.79	12.47	1441
650.0	0.00562	151.81	13569.8	8165.0	20.79	12.47	1500
700.0	0.00522	153.35	14609.1	8788.6	20.79	12.47	1557
750.0	0.00487	154.78	15648.4	9412.2	20.79	12.47	1611
800.0	0.00457	156.12	16687.7	10035.7	20.79	12.47	1664
850.0	0.00430	157.38	17726.9	10659.3	20.79	12.47	1715
900.0	0.00406	158.57	18766.2	11282.8	20.79	12.47	1765
950.0	0.00385	159.69	19805.5	11906.4	20.79	12.47	1813
1000.0	0.00366	160.76	20844.8	12530.0	20.79	12.47	1861
1100.0	0.00332	162.74	22923.3	13777.1	20.79	12.47	1951
1200.0	0.00305	164.55	25001.9	15024.2	20.79	12.47	2038
1300.0	0.00281	166.21	27080.5	16271.3	20.79	12.47	2121
1400.0	0.00261	167.75	29159.0	17518.4	20.79	12.47	2201
1500.0	0.00244	169.19	31237.6	18765.5	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.4 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.32421	7.90	16.8	15.7	8.63	7.92	213
3.0	35.36605	9.59	21.5	20.4	10.19	8.39	205
* 3.380	34.34080	10.90	25.7	24.5	11.90	8.82	194
* 3.380	1.75983	38.12	117.7	94.6	26.77	12.88	97
3.5	1.66640	39.04	120.8	96.5	25.96	12.81	100
4.0	1.37872	42.36	133.2	103.8	23.97	12.62	110
4.5	1.18604	45.12	145.0	110.8	22.99	12.53	119
5.0	1.04499	47.51	156.3	117.5	22.43	12.49	127
5.5	0.93611	49.63	167.4	124.1	22.07	12.47	134
6.0	0.84900	51.54	178.4	130.7	21.82	12.46	141
6.5	0.77746	53.28	189.3	137.1	21.65	12.46	148
7.0	0.71751	54.88	200.0	143.6	21.52	12.46	154
7.5	0.66645	56.36	210.8	150.0	21.41	12.46	160
8.0	0.62239	57.74	221.5	156.3	21.33	12.46	165
8.5	0.58394	59.03	232.1	162.7	21.27	12.46	170
9.0	0.55008	60.24	242.7	169.1	21.21	12.46	176
9.5	0.52002	61.39	253.3	175.4	21.17	12.46	181
10.0	0.49313	62.47	263.9	181.7	21.13	12.47	185
11.0	0.44705	64.48	285.0	194.3	21.07	12.47	195
12.0	0.40895	66.32	306.1	206.9	21.03	12.47	204
13.0	0.37691	68.00	327.1	219.5	20.99	12.47	212
14.0	0.34957	69.55	348.0	232.1	20.96	12.47	220
15.0	0.32596	71.00	369.0	244.7	20.94	12.47	228
16.0	0.30537	72.35	389.9	257.2	20.92	12.47	236
17.0	0.28724	73.62	410.8	269.7	20.91	12.47	243
18.0	0.27115	74.81	431.7	282.3	20.89	12.48	250
19.0	0.25679	75.94	452.6	294.8	20.88	12.48	257
20.0	0.24387	77.01	473.5	307.3	20.87	12.48	263
22.0	0.22160	79.00	515.2	332.3	20.86	12.48	276
24.0	0.20307	80.82	556.9	357.4	20.85	12.48	289
26.0	0.18740	82.48	598.6	382.4	20.84	12.48	300
28.0	0.17399	84.03	640.3	407.4	20.83	12.48	312
30.0	0.16237	85.46	682.0	432.3	20.82	12.48	323
32.0	0.15221	86.81	723.6	457.3	20.82	12.48	333
34.0	0.14325	88.07	765.2	482.3	20.82	12.48	344
36.0	0.13529	89.26	806.9	507.3	20.81	12.47	354
38.0	0.12817	90.39	848.5	532.2	20.81	12.47	363
40.0	0.12176	91.45	890.1	557.2	20.81	12.47	373
45.0	0.10823	93.90	994.1	619.6	20.80	12.47	395
50.0	0.09741	96.09	1098.1	682.0	20.80	12.47	416
55.0	0.08855	98.08	1202.1	744.4	20.80	12.47	437
60.0	0.08118	99.89	1306.1	806.8	20.79	12.47	456
65.0	0.07494	101.55	1410.1	869.2	20.79	12.47	475
70.0	0.06959	103.09	1514.0	931.6	20.79	12.47	493
75.0	0.06495	104.53	1618.0	993.9	20.79	12.47	510
80.0	0.06089	105.87	1721.9	1056.3	20.79	12.47	527
85.0	0.05731	107.13	1825.9	1118.7	20.79	12.47	543
90.0	0.05413	108.32	1929.8	1181.0	20.79	12.47	559
95.0	0.05128	109.44	2033.8	1243.4	20.79	12.47	574
100.0	0.04872	110.51	2137.7	1305.8	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.4 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.04429	112.49	2345.6	1430.5	20.79	12.47	617
120.0	0.04060	114.30	2553.5	1555.2	20.79	12.47	645
130.0	0.03748	115.96	2761.3	1679.9	20.79	12.47	671
140.0	0.03480	117.50	2969.2	1804.7	20.79	12.47	696
150.0	0.03249	118.93	3177.1	1929.4	20.79	12.47	721
160.0	0.03046	120.28	3384.9	2054.1	20.79	12.47	744
170.0	0.02866	121.54	3592.8	2178.8	20.79	12.47	767
180.0	0.02707	122.72	3800.7	2303.5	20.79	12.47	790
190.0	0.02565	123.85	4008.5	2428.3	20.79	12.47	811
200.0	0.02437	124.91	4216.4	2553.0	20.79	12.47	832
210.0	0.02321	125.93	4424.2	2677.7	20.79	12.47	853
220.0	0.02215	126.90	4632.1	2802.4	20.79	12.47	873
230.0	0.02119	127.82	4840.0	2927.1	20.79	12.47	892
240.0	0.02031	128.70	5047.8	3051.8	20.79	12.47	912
250.0	0.01949	129.55	5255.7	3176.6	20.79	12.47	930
260.0	0.01874	130.37	5463.5	3301.3	20.79	12.47	949
270.0	0.01805	131.15	5671.4	3426.0	20.79	12.47	967
280.0	0.01741	131.91	5879.3	3550.7	20.79	12.47	985
290.0	0.01681	132.64	6087.1	3675.4	20.79	12.47	1002
300.0	0.01625	133.34	6295.0	3800.1	20.79	12.47	1019
310.0	0.01572	134.02	6502.8	3924.8	20.79	12.47	1036
320.0	0.01523	134.68	6710.7	4049.6	20.79	12.47	1053
330.0	0.01477	135.32	6918.5	4174.3	20.79	12.47	1069
340.0	0.01434	135.94	7126.4	4299.0	20.79	12.47	1085
350.0	0.01393	136.55	7334.3	4423.7	20.79	12.47	1101
360.0	0.01354	137.13	7542.1	4548.4	20.79	12.47	1116
370.0	0.01317	137.70	7750.0	4673.1	20.79	12.47	1132
380.0	0.01283	138.26	7957.8	4797.8	20.79	12.47	1147
390.0	0.01250	138.80	8165.7	4922.5	20.79	12.47	1162
400.0	0.01219	139.32	8373.5	5047.3	20.79	12.47	1177
420.0	0.01160	140.34	8789.2	5296.7	20.79	12.47	1206
440.0	0.01108	141.30	9205.0	5546.1	20.79	12.47	1234
460.0	0.01060	142.23	9620.7	5795.5	20.79	12.47	1262
480.0	0.01015	143.11	10036.4	6045.0	20.79	12.47	1289
500.0	0.00975	143.96	10452.1	6294.4	20.79	12.47	1316
550.0	0.00886	145.94	11491.4	6917.9	20.79	12.47	1380
600.0	0.00812	147.75	12530.7	7541.5	20.79	12.47	1441
650.0	0.00750	149.41	13569.9	8165.1	20.79	12.47	1500
700.0	0.00696	150.95	14609.2	8788.6	20.79	12.47	1557
750.0	0.00650	152.39	15648.5	9412.2	20.79	12.47	1611
800.0	0.00609	153.73	16687.8	10035.7	20.79	12.47	1664
850.0	0.00573	154.99	17727.1	10659.3	20.79	12.47	1715
900.0	0.00542	156.18	18766.3	11282.9	20.79	12.47	1765
950.0	0.00513	157.30	19805.6	11906.4	20.79	12.47	1813
1000.0	0.00487	158.37	20844.9	12530.0	20.79	12.47	1861
1100.0	0.00443	160.35	22923.5	13777.1	20.79	12.47	1951
1200.0	0.00406	162.16	25002.0	15024.2	20.79	12.47	2038
1300.0	0.00375	163.82	27080.6	16271.3	20.79	12.47	2121
1400.0	0.00348	165.36	29159.1	17518.5	20.79	12.47	2201
1500.0	0.00325	166.80	31237.7	18765.6	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.5 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.38488	7.88	17.1	15.7	8.60	7.89	214
3.0	35.43871	9.58	21.7	20.3	10.14	8.37	206
3.5	34.04839	11.30	27.3	25.9	12.48	8.93	191
* 3.563	33.83054	11.53	28.1	26.6	12.88	9.00	189
* 3.563	2.15389	37.06	119.2	95.6	28.03	12.87	98
4.0	1.79204	40.12	130.7	102.4	25.24	12.66	108
4.5	1.52266	42.99	142.9	109.7	23.76	12.55	118
5.0	1.33205	45.45	154.6	116.6	22.95	12.49	126
5.5	1.18781	47.61	165.9	123.3	22.46	12.47	134
6.0	1.07388	49.55	177.1	129.9	22.13	12.46	141
6.5	0.98114	51.31	188.1	136.4	21.89	12.45	147
7.0	0.90393	52.93	199.0	142.9	21.72	12.45	153
7.5	0.83850	54.42	209.8	149.4	21.58	12.45	159
8.0	0.78225	55.81	220.6	155.8	21.48	12.45	165
8.5	0.73332	57.11	231.3	162.2	21.40	12.46	170
9.0	0.69033	58.33	242.0	168.6	21.33	12.46	175
9.5	0.65224	59.48	252.6	174.9	21.27	12.46	180
10.0	0.61823	60.57	263.2	181.3	21.22	12.46	185
11.0	0.56004	62.59	284.4	193.9	21.15	12.47	195
12.0	0.51205	64.43	305.5	206.6	21.09	12.47	204
13.0	0.47174	66.12	326.6	219.2	21.04	12.47	212
14.0	0.43739	67.68	347.6	231.8	21.01	12.47	220
15.0	0.40776	69.12	368.6	244.4	20.98	12.47	228
16.0	0.38193	70.48	389.6	256.9	20.96	12.48	236
17.0	0.35920	71.75	410.5	269.5	20.94	12.48	243
18.0	0.33905	72.94	431.5	282.0	20.92	12.48	250
19.0	0.32105	74.07	452.4	294.6	20.91	12.48	257
20.0	0.30488	75.15	473.3	307.1	20.90	12.48	264
22.0	0.27700	77.14	515.0	332.1	20.88	12.48	276
24.0	0.25382	78.95	556.8	357.2	20.86	12.48	289
26.0	0.23423	80.62	598.5	382.2	20.85	12.48	301
28.0	0.21745	82.17	640.2	407.2	20.84	12.48	312
30.0	0.20293	83.60	681.9	432.2	20.83	12.48	323
32.0	0.19023	84.95	723.5	457.2	20.83	12.48	333
34.0	0.17903	86.21	765.2	482.2	20.82	12.48	344
36.0	0.16907	87.40	806.8	507.2	20.82	12.48	354
38.0	0.16017	88.53	848.5	532.1	20.82	12.48	363
40.0	0.15216	89.59	890.1	557.1	20.81	12.48	373
45.0	0.13525	92.05	994.1	619.5	20.81	12.47	395
50.0	0.12173	94.24	1098.2	682.0	20.80	12.47	417
55.0	0.11067	96.22	1202.2	744.4	20.80	12.47	437
60.0	0.10145	98.03	1306.1	806.7	20.80	12.47	456
65.0	0.09365	99.69	1410.1	869.1	20.80	12.47	475
70.0	0.08697	101.24	1514.1	931.5	20.79	12.47	493
75.0	0.08117	102.67	1618.1	993.9	20.79	12.47	510
80.0	0.07610	104.01	1722.0	1056.3	20.79	12.47	527
85.0	0.07163	105.27	1826.0	1118.6	20.79	12.47	543
90.0	0.06765	106.46	1929.9	1181.0	20.79	12.47	559
95.0	0.06409	107.58	2033.9	1243.4	20.79	12.47	574
100.0	0.06089	108.65	2137.8	1305.8	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.5 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.05536	110.63	2345.7	1430.5	20.79	12.47	617
120.0	0.05075	112.44	2553.6	1555.2	20.79	12.47	645
130.0	0.04685	114.11	2761.5	1679.9	20.79	12.47	671
140.0	0.04350	115.65	2969.3	1804.7	20.79	12.47	697
150.0	0.04060	117.08	3177.2	1929.4	20.79	12.47	721
160.0	0.03807	118.42	3385.1	2054.1	20.79	12.47	745
170.0	0.03583	119.68	3592.9	2178.8	20.79	12.47	767
180.0	0.03384	120.87	3800.8	2303.5	20.79	12.47	790
190.0	0.03206	121.99	4008.7	2428.3	20.79	12.47	811
200.0	0.03046	123.06	4216.5	2553.0	20.79	12.47	832
210.0	0.02901	124.07	4424.4	2677.7	20.79	12.47	853
220.0	0.02769	125.04	4632.2	2802.4	20.79	12.47	873
230.0	0.02648	125.96	4840.1	2927.1	20.79	12.47	893
240.0	0.02538	126.85	5048.0	3051.8	20.79	12.47	912
250.0	0.02437	127.70	5255.8	3176.6	20.79	12.47	931
260.0	0.02343	128.51	5463.7	3301.3	20.79	12.47	949
270.0	0.02256	129.30	5671.5	3426.0	20.79	12.47	967
280.0	0.02176	130.05	5879.4	3550.7	20.79	12.47	985
290.0	0.02101	130.78	6087.2	3675.4	20.79	12.47	1002
300.0	0.02031	131.49	6295.1	3800.1	20.79	12.47	1019
310.0	0.01965	132.17	6503.0	3924.9	20.79	12.47	1036
320.0	0.01904	132.83	6710.8	4049.6	20.79	12.47	1053
330.0	0.01846	133.47	6918.7	4174.3	20.79	12.47	1069
340.0	0.01792	134.09	7126.5	4299.0	20.79	12.47	1085
350.0	0.01741	134.69	7334.4	4423.7	20.79	12.47	1101
360.0	0.01692	135.28	7542.2	4548.4	20.79	12.47	1117
370.0	0.01647	135.85	7750.1	4673.1	20.79	12.47	1132
380.0	0.01603	136.40	7958.0	4797.8	20.79	12.47	1147
390.0	0.01562	136.94	8165.8	4922.6	20.79	12.47	1162
400.0	0.01523	137.47	8373.7	5047.3	20.79	12.47	1177
420.0	0.01451	138.48	8789.4	5296.7	20.79	12.47	1206
440.0	0.01385	139.45	9205.1	5546.1	20.79	12.47	1234
460.0	0.01324	140.37	9620.8	5795.5	20.79	12.47	1262
480.0	0.01269	141.26	10036.5	6045.0	20.79	12.47	1289
500.0	0.01219	142.11	10452.2	6294.4	20.79	12.47	1316
550.0	0.01108	144.09	11491.5	6918.0	20.79	12.47	1380
600.0	0.01015	145.90	12530.8	7541.5	20.79	12.47	1441
650.0	0.00937	147.56	13570.1	8165.1	20.79	12.47	1500
700.0	0.00870	149.10	14609.3	8788.6	20.79	12.47	1557
750.0	0.00812	150.53	15648.6	9412.2	20.79	12.47	1611
800.0	0.00762	151.87	16687.9	10035.8	20.79	12.47	1664
850.0	0.00717	153.13	17727.2	10659.3	20.79	12.47	1715
900.0	0.00677	154.32	18766.5	11282.9	20.79	12.47	1765
950.0	0.00641	155.45	19805.7	11906.5	20.79	12.47	1814
1000.0	0.00609	156.51	20845.0	12530.0	20.79	12.47	1861
1100.0	0.00554	158.49	22923.6	13777.1	20.79	12.47	1951
1200.0	0.00508	160.30	25002.1	15024.3	20.79	12.47	2038
1300.0	0.00469	161.97	27080.7	16271.4	20.79	12.47	2121
1400.0	0.00435	163.51	29159.3	17518.5	20.79	12.47	2201
1500.0	0.00406	164.94	31237.8	18765.6	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.6 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.44474	7.87	17.3	15.7	8.56	7.86	215
3.0	35.51013	9.56	22.0	20.2	10.09	8.35	208
3.5	34.14406	11.27	27.5	25.8	12.38	8.91	193
* 3.723	33.33807	12.08	30.5	28.6	13.91	9.15	184
* 3.723	2.55046	36.15	120.2	96.4	29.41	12.84	99
4.0	2.24766	38.16	128.0	100.9	26.90	12.70	106
4.5	1.88072	41.19	140.8	108.4	24.67	12.56	116
5.0	1.63185	43.72	152.8	115.5	23.54	12.50	125
5.5	1.44779	45.93	164.4	122.4	22.88	12.47	133
6.0	1.30447	47.90	175.7	129.1	22.45	12.45	140
6.5	1.18893	49.69	186.9	135.7	22.15	12.45	146
7.0	1.09340	51.32	197.9	142.3	21.93	12.45	153
7.5	1.01287	52.83	208.8	148.8	21.76	12.45	159
8.0	0.94391	54.23	219.6	155.2	21.63	12.45	164
8.5	0.88411	55.53	230.4	161.7	21.53	12.45	170
9.0	0.83171	56.76	241.2	168.1	21.44	12.46	175
9.5	0.78537	57.92	251.9	174.5	21.37	12.46	180
10.0	0.74406	59.01	262.5	180.8	21.31	12.46	185
11.0	0.67355	61.04	283.8	193.5	21.22	12.47	195
12.0	0.61549	62.88	305.0	206.2	21.15	12.47	204
13.0	0.56682	64.58	326.1	218.9	21.10	12.47	212
14.0	0.52539	66.14	347.2	231.5	21.06	12.47	220
15.0	0.48969	67.59	368.2	244.1	21.02	12.47	228
16.0	0.45858	68.94	389.2	256.7	20.99	12.48	236
17.0	0.43123	70.22	410.2	269.2	20.97	12.48	243
18.0	0.40698	71.41	431.2	281.8	20.95	12.48	250
19.0	0.38535	72.55	452.1	294.3	20.93	12.48	257
20.0	0.36591	73.62	473.0	306.9	20.92	12.48	264
22.0	0.33241	75.61	514.9	332.0	20.90	12.48	277
24.0	0.30456	77.43	556.6	357.0	20.88	12.48	289
26.0	0.28104	79.10	598.4	382.0	20.86	12.48	301
28.0	0.26091	80.65	640.1	407.1	20.85	12.48	312
30.0	0.24347	82.08	681.8	432.1	20.84	12.48	323
32.0	0.22823	83.43	723.5	457.1	20.84	12.48	334
34.0	0.21479	84.69	765.1	482.1	20.83	12.48	344
36.0	0.20284	85.88	806.8	507.1	20.83	12.48	354
38.0	0.19216	87.01	848.4	532.1	20.82	12.48	363
40.0	0.18255	88.08	890.1	557.0	20.82	12.48	373
45.0	0.16227	90.53	994.1	619.5	20.81	12.48	395
50.0	0.14604	92.72	1098.2	681.9	20.81	12.48	417
55.0	0.13277	94.70	1202.2	744.3	20.80	12.47	437
60.0	0.12171	96.51	1306.2	806.7	20.80	12.47	456
65.0	0.11236	98.18	1410.2	869.1	20.80	12.47	475
70.0	0.10434	99.72	1514.2	931.5	20.80	12.47	493
75.0	0.09739	101.15	1618.1	993.9	20.79	12.47	510
80.0	0.09131	102.50	1722.1	1056.2	20.79	12.47	527
85.0	0.08594	103.76	1826.1	1118.6	20.79	12.47	543
90.0	0.08117	104.94	1930.0	1181.0	20.79	12.47	559
95.0	0.07690	106.07	2034.0	1243.4	20.79	12.47	574
100.0	0.07306	107.13	2137.9	1305.7	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.6 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.06642	109.12	2345.8	1430.5	20.79	12.47	618
120.0	0.06089	110.93	2553.7	1555.2	20.79	12.47	645
130.0	0.05621	112.59	2761.6	1679.9	20.79	12.47	671
140.0	0.05220	114.13	2969.4	1804.7	20.79	12.47	697
150.0	0.04872	115.56	3177.3	1929.4	20.79	12.47	721
160.0	0.04567	116.91	3385.2	2054.1	20.79	12.47	745
170.0	0.04299	118.17	3593.1	2178.8	20.79	12.47	768
180.0	0.04060	119.35	3800.9	2303.6	20.79	12.47	790
190.0	0.03847	120.48	4008.8	2428.3	20.79	12.47	811
200.0	0.03654	121.54	4216.6	2553.0	20.79	12.47	832
210.0	0.03480	122.56	4424.5	2677.7	20.79	12.47	853
220.0	0.03322	123.52	4632.4	2802.4	20.79	12.47	873
230.0	0.03178	124.45	4840.2	2927.1	20.79	12.47	893
240.0	0.03046	125.33	5048.1	3051.9	20.79	12.47	912
250.0	0.02924	126.18	5255.9	3176.6	20.79	12.47	931
260.0	0.02811	127.00	5463.8	3301.3	20.79	12.47	949
270.0	0.02707	127.78	5671.7	3426.0	20.79	12.47	967
280.0	0.02611	128.54	5879.5	3550.7	20.79	12.47	985
290.0	0.02521	129.27	6087.4	3675.4	20.79	12.47	1002
300.0	0.02437	129.97	6295.2	3800.1	20.79	12.47	1019
310.0	0.02358	130.65	6503.1	3924.9	20.79	12.47	1036
320.0	0.02284	131.31	6711.0	4049.6	20.79	12.47	1053
330.0	0.02215	131.95	6918.8	4174.3	20.79	12.47	1069
340.0	0.02150	132.57	7126.7	4299.0	20.79	12.47	1085
350.0	0.02089	133.18	7334.5	4423.7	20.79	12.47	1101
360.0	0.02031	133.76	7542.4	4548.4	20.79	12.47	1117
370.0	0.01976	134.33	7750.2	4673.1	20.79	12.47	1132
380.0	0.01924	134.89	7958.1	4797.9	20.79	12.47	1147
390.0	0.01874	135.43	8165.9	4922.6	20.79	12.47	1162
400.0	0.01828	135.95	8373.8	5047.3	20.79	12.47	1177
420.0	0.01741	136.97	8789.5	5296.7	20.79	12.47	1206
440.0	0.01662	137.93	9205.2	5546.1	20.79	12.47	1234
460.0	0.01589	138.86	9620.9	5795.6	20.79	12.47	1262
480.0	0.01523	139.74	10036.7	6045.0	20.79	12.47	1289
500.0	0.01462	140.59	10452.4	6294.4	20.79	12.47	1316
550.0	0.01329	142.57	11491.6	6918.0	20.79	12.47	1380
600.0	0.01219	144.38	12530.9	7541.5	20.79	12.47	1441
650.0	0.01125	146.04	13570.2	8165.1	20.79	12.47	1500
700.0	0.01044	147.58	14609.5	8788.7	20.79	12.47	1557
750.0	0.00975	149.02	15648.8	9412.2	20.79	12.47	1611
800.0	0.00914	150.36	16688.0	10035.8	20.79	12.47	1664
850.0	0.00860	151.62	17727.3	10659.4	20.79	12.47	1715
900.0	0.00812	152.81	18766.6	11282.9	20.79	12.47	1765
950.0	0.00770	153.93	19805.9	11906.5	20.79	12.47	1814
1000.0	0.00731	155.00	20845.1	12530.0	20.79	12.47	1861
1100.0	0.00665	156.98	22923.7	13777.2	20.79	12.47	1951
1200.0	0.00609	158.79	25002.3	15024.3	20.79	12.47	2038
1300.0	0.00562	160.45	27080.8	16271.4	20.79	12.47	2121
1400.0	0.00522	161.99	29159.4	17518.5	20.79	12.47	2201
1500.0	0.00487	163.42	31237.9	18765.7	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.7 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.50382	7.86	17.6	15.6	8.53	7.84	217
3.0	35.58036	9.54	22.2	20.2	10.04	8.33	209
3.5	34.23741	11.24	27.7	25.7	12.28	8.89	195
* 3.866	32.85510	12.58	32.7	30.5	15.01	9.29	179
* 3.866	2.95286	35.36	120.9	96.8	30.94	12.82	99
4.0	2.76017	36.38	124.9	99.2	29.17	12.74	103
4.5	2.26437	39.59	138.5	107.2	25.75	12.57	114
5.0	1.94600	42.21	150.9	114.5	24.21	12.50	123
5.5	1.71680	44.48	162.8	121.5	23.34	12.46	132
6.0	1.54116	46.48	174.3	128.3	22.79	12.45	139
6.5	1.40105	48.29	185.6	135.0	22.42	12.44	146
7.0	1.28606	49.94	196.8	141.6	22.15	12.44	152
7.5	1.18964	51.46	207.8	148.2	21.94	12.44	158
8.0	1.10742	52.87	218.7	154.7	21.79	12.45	164
8.5	1.03636	54.19	229.6	161.1	21.66	12.45	170
9.0	0.97424	55.43	240.4	167.6	21.56	12.45	175
9.5	0.91942	56.59	251.1	174.0	21.48	12.46	180
10.0	0.87066	57.69	261.9	180.4	21.41	12.46	185
11.0	0.78756	59.72	283.2	193.2	21.30	12.47	195
12.0	0.71929	61.57	304.5	205.9	21.21	12.47	204
13.0	0.66215	63.27	325.6	218.5	21.15	12.47	212
14.0	0.61357	64.83	346.8	231.2	21.10	12.47	220
15.0	0.57173	66.29	367.9	243.8	21.06	12.48	228
16.0	0.53532	67.65	388.9	256.4	21.03	12.48	236
17.0	0.50331	68.92	409.9	269.0	21.00	12.48	243
18.0	0.47496	70.12	430.9	281.6	20.98	12.48	250
19.0	0.44967	71.25	451.9	294.1	20.96	12.48	257
20.0	0.42695	72.33	472.8	306.7	20.94	12.48	264
22.0	0.38782	74.32	514.7	331.8	20.91	12.48	277
24.0	0.35530	76.14	556.5	356.8	20.89	12.48	289
26.0	0.32784	77.81	598.2	381.9	20.88	12.48	301
28.0	0.30434	79.36	640.0	406.9	20.86	12.48	312
30.0	0.28400	80.80	681.7	431.9	20.85	12.48	323
32.0	0.26621	82.14	723.4	457.0	20.85	12.48	334
34.0	0.25053	83.41	765.1	482.0	20.84	12.48	344
36.0	0.23660	84.60	806.8	507.0	20.83	12.48	354
38.0	0.22414	85.72	848.4	532.0	20.83	12.48	364
40.0	0.21293	86.79	890.1	556.9	20.82	12.48	373
45.0	0.18927	89.24	994.2	619.4	20.81	12.48	396
50.0	0.17035	91.44	1098.2	681.8	20.81	12.48	417
55.0	0.15487	93.42	1202.2	744.2	20.80	12.48	437
60.0	0.14197	95.23	1306.3	806.6	20.80	12.48	457
65.0	0.13106	96.90	1410.3	869.0	20.80	12.47	475
70.0	0.12170	98.44	1514.2	931.4	20.80	12.47	493
75.0	0.11360	99.87	1618.2	993.8	20.80	12.47	510
80.0	0.10650	101.21	1722.2	1056.2	20.79	12.47	527
85.0	0.10025	102.47	1826.2	1118.6	20.79	12.47	543
90.0	0.09468	103.66	1930.1	1181.0	20.79	12.47	559
95.0	0.08970	104.79	2034.1	1243.3	20.79	12.47	574
100.0	0.08522	105.85	2138.0	1305.7	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.7 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.07748	107.83	2345.9	1430.5	20.79	12.47	618
120.0	0.07103	109.64	2553.8	1555.2	20.79	12.47	645
130.0	0.06557	111.31	2761.7	1679.9	20.79	12.47	671
140.0	0.06089	112.85	2969.6	1804.7	20.79	12.47	697
150.0	0.05683	114.28	3177.4	1929.4	20.79	12.47	721
160.0	0.05328	115.62	3385.3	2054.1	20.79	12.47	745
170.0	0.05015	116.88	3593.2	2178.8	20.79	12.47	768
180.0	0.04737	118.07	3801.0	2303.6	20.79	12.47	790
190.0	0.04487	119.20	4008.9	2428.3	20.79	12.47	811
200.0	0.04263	120.26	4216.8	2553.0	20.79	12.47	832
210.0	0.04060	121.28	4424.6	2677.7	20.79	12.47	853
220.0	0.03876	122.24	4632.5	2802.4	20.79	12.47	873
230.0	0.03707	123.17	4840.4	2927.1	20.79	12.47	893
240.0	0.03553	124.05	5048.2	3051.9	20.79	12.47	912
250.0	0.03411	124.90	5256.1	3176.6	20.79	12.47	931
260.0	0.03280	125.72	5463.9	3301.3	20.79	12.47	949
270.0	0.03158	126.50	5671.8	3426.0	20.79	12.47	967
280.0	0.03046	127.26	5879.7	3550.7	20.79	12.47	985
290.0	0.02941	127.99	6087.5	3675.4	20.79	12.47	1002
300.0	0.02843	128.69	6295.4	3800.2	20.79	12.47	1019
310.0	0.02751	129.37	6503.2	3924.9	20.79	12.47	1036
320.0	0.02665	130.03	6711.1	4049.6	20.79	12.47	1053
330.0	0.02584	130.67	6918.9	4174.3	20.79	12.47	1069
340.0	0.02508	131.29	7126.8	4299.0	20.79	12.47	1085
350.0	0.02437	131.89	7334.7	4423.7	20.79	12.47	1101
360.0	0.02369	132.48	7542.5	4548.5	20.79	12.47	1117
370.0	0.02305	133.05	7750.4	4673.2	20.79	12.47	1132
380.0	0.02244	133.60	7958.2	4797.9	20.79	12.47	1147
390.0	0.02187	134.14	8166.1	4922.6	20.79	12.47	1162
400.0	0.02132	134.67	8373.9	5047.3	20.79	12.47	1177
420.0	0.02031	135.68	8789.6	5296.7	20.79	12.47	1206
440.0	0.01938	136.65	9205.4	5546.2	20.79	12.47	1234
460.0	0.01854	137.57	9621.1	5795.6	20.79	12.47	1262
480.0	0.01777	138.46	10036.8	6045.0	20.79	12.47	1289
500.0	0.01706	139.31	10452.5	6294.4	20.79	12.47	1316
550.0	0.01551	141.29	11491.8	6918.0	20.79	12.47	1380
600.0	0.01422	143.10	12531.1	7541.6	20.79	12.47	1441
650.0	0.01312	144.76	13570.3	8165.1	20.79	12.47	1500
700.0	0.01219	146.30	14609.6	8788.7	20.79	12.47	1557
750.0	0.01137	147.74	15648.9	9412.3	20.79	12.47	1611
800.0	0.01066	149.08	16688.2	10035.8	20.79	12.47	1664
850.0	0.01004	150.34	17727.4	10659.4	20.79	12.47	1715
900.0	0.00948	151.53	18766.7	11282.9	20.79	12.47	1765
950.0	0.00898	152.65	19806.0	11906.5	20.79	12.47	1814
1000.0	0.00853	153.72	20845.3	12530.1	20.79	12.47	1861
1100.0	0.00775	155.70	22923.8	13777.2	20.79	12.47	1951
1200.0	0.00711	157.51	25002.4	15024.3	20.79	12.47	2038
1300.0	0.00656	159.17	27080.9	16271.4	20.79	12.47	2121
1400.0	0.00609	160.71	29159.5	17518.6	20.79	12.47	2201
1500.0	0.00569	162.14	31238.1	18765.7	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.8 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.56214	7.85	17.8	15.6	8.50	7.81	218
3.0	35.64945	9.52	22.4	20.1	10.00	8.31	211
3.5	34.32857	11.22	27.9	25.6	12.19	8.87	196
* 3.995	32.37544	13.05	34.8	32.3	16.24	9.41	175
* 3.995	3.36405	34.63	121.2	97.1	32.68	12.79	100
4.0	3.35467	34.67	121.4	97.2	32.58	12.79	100
4.5	2.67919	38.13	136.1	105.8	27.09	12.59	112
5.0	2.27647	40.86	149.0	113.4	24.97	12.50	122
5.5	1.99570	43.19	161.2	120.6	23.85	12.46	131
6.0	1.78438	45.23	172.9	127.5	23.16	12.44	138
6.5	1.61773	47.06	184.4	134.3	22.70	12.44	145
7.0	1.48202	48.73	195.7	141.0	22.38	12.44	152
7.5	1.36889	50.27	206.8	147.6	22.13	12.44	158
8.0	1.27283	51.69	217.8	154.1	21.95	12.44	164
8.5	1.19008	53.02	228.7	160.6	21.80	12.45	169
9.0	1.11795	54.26	239.6	167.1	21.68	12.45	175
9.5	1.05443	55.43	250.4	173.5	21.58	12.46	180
10.0	0.99801	56.53	261.2	180.0	21.50	12.46	185
11.0	0.90208	58.58	282.6	192.8	21.37	12.46	194
12.0	0.82345	60.43	303.9	205.5	21.28	12.47	203
13.0	0.75772	62.13	325.2	218.2	21.20	12.47	212
14.0	0.70192	63.70	346.3	230.9	21.15	12.47	220
15.0	0.65391	65.16	367.5	243.5	21.10	12.48	228
16.0	0.61214	66.52	388.5	256.1	21.06	12.48	236
17.0	0.57546	67.79	409.6	268.7	21.03	12.48	243
18.0	0.54298	69.00	430.6	281.3	21.00	12.48	250
19.0	0.51402	70.13	451.6	293.9	20.98	12.48	257
20.0	0.48801	71.21	472.6	306.5	20.96	12.48	264
22.0	0.44323	73.20	514.5	331.6	20.93	12.48	277
24.0	0.40604	75.02	556.3	356.7	20.91	12.48	289
26.0	0.37464	76.70	598.1	381.7	20.89	12.48	301
28.0	0.34777	78.24	639.9	406.8	20.88	12.48	312
30.0	0.32451	79.68	681.6	431.8	20.86	12.48	323
32.0	0.30418	81.03	723.3	456.8	20.85	12.48	334
34.0	0.28626	82.29	765.0	481.9	20.85	12.48	344
36.0	0.27034	83.49	806.7	506.9	20.84	12.48	354
38.0	0.25610	84.61	848.4	531.9	20.83	12.48	364
40.0	0.24329	85.68	890.0	556.9	20.83	12.48	373
45.0	0.21625	88.13	994.2	619.3	20.82	12.48	396
50.0	0.19464	90.33	1098.2	681.8	20.81	12.48	417
55.0	0.17695	92.31	1202.3	744.2	20.81	12.48	437
60.0	0.16222	94.12	1306.3	806.6	20.80	12.48	457
65.0	0.14975	95.78	1410.3	869.0	20.80	12.48	475
70.0	0.13906	97.33	1514.3	931.4	20.80	12.47	493
75.0	0.12980	98.76	1618.3	993.8	20.80	12.47	510
80.0	0.12170	100.10	1722.3	1056.2	20.79	12.47	527
85.0	0.11455	101.36	1826.2	1118.6	20.79	12.47	543
90.0	0.10819	102.55	1930.2	1180.9	20.79	12.47	559
95.0	0.10250	103.68	2034.2	1243.3	20.79	12.47	574
100.0	0.09738	104.74	2138.1	1305.7	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.8 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.08854	106.72	2346.0	1430.4	20.79	12.47	618
120.0	0.08116	108.53	2553.9	1555.2	20.79	12.47	645
130.0	0.07493	110.20	2761.8	1679.9	20.79	12.47	671
140.0	0.06958	111.74	2969.7	1804.7	20.79	12.47	697
150.0	0.06494	113.17	3177.6	1929.4	20.79	12.47	721
160.0	0.06089	114.51	3385.4	2054.1	20.79	12.47	745
170.0	0.05731	115.77	3593.3	2178.8	20.79	12.47	768
180.0	0.05413	116.96	3801.2	2303.6	20.79	12.47	790
190.0	0.05128	118.09	4009.0	2428.3	20.79	12.47	811
200.0	0.04872	119.15	4216.9	2553.0	20.79	12.47	833
210.0	0.04640	120.17	4424.8	2677.7	20.79	12.47	853
220.0	0.04429	121.13	4632.6	2802.4	20.79	12.47	873
230.0	0.04237	122.06	4840.5	2927.2	20.79	12.47	893
240.0	0.04060	122.94	5048.4	3051.9	20.79	12.47	912
250.0	0.03898	123.79	5256.2	3176.6	20.79	12.47	931
260.0	0.03748	124.61	5464.1	3301.3	20.79	12.47	949
270.0	0.03609	125.39	5671.9	3426.0	20.79	12.47	967
280.0	0.03480	126.15	5879.8	3550.7	20.79	12.47	985
290.0	0.03361	126.88	6087.6	3675.5	20.79	12.47	1002
300.0	0.03249	127.58	6295.5	3800.2	20.79	12.47	1019
310.0	0.03144	128.26	6503.4	3924.9	20.79	12.47	1036
320.0	0.03046	128.92	6711.2	4049.6	20.79	12.47	1053
330.0	0.02953	129.56	6919.1	4174.3	20.79	12.47	1069
340.0	0.02867	130.18	7126.9	4299.0	20.79	12.47	1085
350.0	0.02785	130.78	7334.8	4423.8	20.79	12.47	1101
360.0	0.02707	131.37	7542.6	4548.5	20.79	12.47	1117
370.0	0.02634	131.94	7750.5	4673.2	20.79	12.47	1132
380.0	0.02565	132.49	7958.4	4797.9	20.79	12.47	1147
390.0	0.02499	133.03	8166.2	4922.6	20.79	12.47	1162
400.0	0.02437	133.56	8374.1	5047.3	20.79	12.47	1177
420.0	0.02321	134.57	8789.8	5296.8	20.79	12.47	1206
440.0	0.02215	135.54	9205.5	5546.2	20.79	12.47	1234
460.0	0.02119	136.46	9621.2	5795.6	20.79	12.47	1262
480.0	0.02031	137.35	10036.9	6045.0	20.79	12.47	1289
500.0	0.01949	138.20	10452.6	6294.5	20.79	12.47	1316
550.0	0.01772	140.18	11491.9	6918.0	20.79	12.47	1380
600.0	0.01625	141.99	12531.2	7541.6	20.79	12.47	1441
650.0	0.01500	143.65	13570.5	8165.2	20.79	12.47	1500
700.0	0.01393	145.19	14609.7	8788.7	20.79	12.47	1557
750.0	0.01300	146.63	15649.0	9412.3	20.79	12.47	1611
800.0	0.01219	147.97	16688.3	10035.9	20.79	12.47	1664
850.0	0.01147	149.23	17727.6	10659.4	20.79	12.47	1715
900.0	0.01083	150.42	18766.8	11283.0	20.79	12.47	1765
950.0	0.01026	151.54	19806.1	11906.5	20.79	12.47	1814
1000.0	0.00975	152.61	20845.4	12530.1	20.79	12.47	1861
1100.0	0.00886	154.59	22924.0	13777.2	20.79	12.47	1951
1200.0	0.00812	156.39	25002.5	15024.4	20.79	12.47	2038
1300.0	0.00750	158.06	27081.1	16271.5	20.79	12.47	2121
1400.0	0.00696	159.60	29159.6	17518.6	20.79	12.47	2202
1500.0	0.00650	161.03	31238.2	18765.7	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.9 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.61972	7.84	18.1	15.6	8.47	7.79	219
3.0	35.71744	9.50	22.7	20.1	9.96	8.29	212
3.5	34.41765	11.19	28.1	25.5	12.10	8.85	198
4.0	32.49128	13.02	35.0	32.2	16.01	9.39	177
* 4.114	31.89407	13.50	36.9	34.1	17.61	9.53	171
* 4.114	3.78692	33.97	121.4	97.3	34.66	12.76	100
4.5	3.13309	36.77	133.4	104.3	28.80	12.60	110
5.0	2.62571	39.63	147.0	112.2	25.86	12.50	121
5.5	2.28550	42.02	159.5	119.6	24.41	12.46	130
6.0	2.03461	44.10	171.5	126.7	23.56	12.44	137
6.5	1.83922	45.97	183.1	133.5	23.01	12.43	145
7.0	1.68145	47.66	194.5	140.3	22.62	12.43	151
7.5	1.55070	49.21	205.7	146.9	22.33	12.44	158
8.0	1.44019	50.64	216.9	153.5	22.11	12.44	163
8.5	1.34533	51.97	227.9	160.1	21.94	12.44	169
9.0	1.26285	53.22	238.8	166.6	21.80	12.45	175
9.5	1.19038	54.40	249.7	173.1	21.69	12.45	180
10.0	1.12614	55.51	260.5	179.5	21.60	12.46	185
11.0	1.01712	57.56	282.0	192.4	21.45	12.46	194
12.0	0.92796	59.42	303.4	205.1	21.34	12.47	203
13.0	0.85355	61.13	324.7	217.9	21.26	12.47	212
14.0	0.79044	62.70	345.9	230.6	21.19	12.47	220
15.0	0.73620	64.16	367.1	243.2	21.14	12.48	228
16.0	0.68906	65.52	388.2	255.9	21.10	12.48	236
17.0	0.64767	66.80	409.3	268.5	21.06	12.48	243
18.0	0.61105	68.00	430.3	281.1	21.03	12.48	250
19.0	0.57839	69.14	451.3	293.7	21.01	12.48	257
20.0	0.54909	70.22	472.3	306.3	20.99	12.48	264
22.0	0.49865	72.22	514.3	331.4	20.95	12.48	277
24.0	0.45677	74.04	556.2	356.5	20.92	12.48	289
26.0	0.42142	75.71	598.0	381.6	20.90	12.48	301
28.0	0.39118	77.26	639.8	406.6	20.89	12.48	312
30.0	0.36501	78.70	681.5	431.7	20.87	12.48	323
32.0	0.34214	80.05	723.3	456.7	20.86	12.48	334
34.0	0.32197	81.31	765.0	481.7	20.85	12.48	344
36.0	0.30406	82.50	806.7	506.8	20.85	12.48	354
38.0	0.28805	83.63	848.4	531.8	20.84	12.48	364
40.0	0.27364	84.70	890.0	556.8	20.83	12.48	373
45.0	0.24323	87.15	994.2	619.2	20.82	12.48	396
50.0	0.21892	89.35	1098.3	681.7	20.82	12.48	417
55.0	0.19903	91.33	1202.3	744.1	20.81	12.48	437
60.0	0.18246	93.14	1306.4	806.5	20.81	12.48	457
65.0	0.16844	94.80	1410.4	869.0	20.80	12.48	475
70.0	0.15642	96.35	1514.4	931.4	20.80	12.48	493
75.0	0.14600	97.78	1618.4	993.8	20.80	12.48	510
80.0	0.13689	99.12	1722.4	1056.2	20.80	12.47	527
85.0	0.12884	100.38	1826.3	1118.5	20.79	12.47	543
90.0	0.12169	101.57	1930.3	1180.9	20.79	12.47	559
95.0	0.11530	102.70	2034.3	1243.3	20.79	12.47	574
100.0	0.10954	103.76	2138.2	1305.7	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

0.9 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.09959	105.74	2346.1	1430.4	20.79	12.47	618
120.0	0.09130	107.55	2554.0	1555.2	20.79	12.47	645
130.0	0.08428	109.22	2761.9	1679.9	20.79	12.47	672
140.0	0.07827	110.76	2969.8	1804.6	20.79	12.47	697
150.0	0.07305	112.19	3177.7	1929.4	20.79	12.47	721
160.0	0.06849	113.53	3385.6	2054.1	20.79	12.47	745
170.0	0.06447	114.79	3593.4	2178.8	20.79	12.47	768
180.0	0.06089	115.98	3801.3	2303.6	20.79	12.47	790
190.0	0.05769	117.11	4009.2	2428.3	20.79	12.47	812
200.0	0.05480	118.17	4217.0	2553.0	20.79	12.47	833
210.0	0.05220	119.19	4424.9	2677.7	20.79	12.47	853
220.0	0.04982	120.15	4632.8	2802.4	20.79	12.47	873
230.0	0.04766	121.08	4840.6	2927.2	20.79	12.47	893
240.0	0.04568	121.96	5048.5	3051.9	20.79	12.47	912
250.0	0.04385	122.81	5256.3	3176.6	20.79	12.47	931
260.0	0.04216	123.63	5464.2	3301.3	20.79	12.47	949
270.0	0.04060	124.41	5672.1	3426.0	20.79	12.47	967
280.0	0.03915	125.17	5879.9	3550.8	20.79	12.47	985
290.0	0.03780	125.90	6087.8	3675.5	20.79	12.47	1002
300.0	0.03654	126.60	6295.6	3800.2	20.79	12.47	1019
310.0	0.03537	127.28	6503.5	3924.9	20.79	12.47	1036
320.0	0.03426	127.94	6711.4	4049.6	20.79	12.47	1053
330.0	0.03322	128.58	6919.2	4174.3	20.79	12.47	1069
340.0	0.03225	129.20	7127.1	4299.1	20.79	12.47	1085
350.0	0.03133	129.80	7334.9	4423.8	20.79	12.47	1101
360.0	0.03046	130.39	7542.8	4548.5	20.79	12.47	1117
370.0	0.02963	130.96	7750.6	4673.2	20.79	12.47	1132
380.0	0.02885	131.51	7958.5	4797.9	20.79	12.47	1147
390.0	0.02811	132.05	8166.3	4922.6	20.79	12.47	1162
400.0	0.02741	132.58	8374.2	5047.3	20.79	12.47	1177
420.0	0.02611	133.59	8789.9	5296.8	20.79	12.47	1206
440.0	0.02492	134.56	9205.6	5546.2	20.79	12.47	1234
460.0	0.02384	135.49	9621.3	5795.6	20.79	12.47	1262
480.0	0.02284	136.37	10037.0	6045.1	20.79	12.47	1289
500.0	0.02193	137.22	10452.8	6294.5	20.79	12.47	1316
550.0	0.01994	139.20	11492.0	6918.0	20.79	12.47	1380
600.0	0.01828	141.01	12531.3	7541.6	20.79	12.47	1441
650.0	0.01687	142.67	13570.6	8165.2	20.79	12.47	1500
700.0	0.01567	144.21	14609.9	8788.7	20.79	12.47	1557
750.0	0.01462	145.65	15649.1	9412.3	20.79	12.47	1611
800.0	0.01371	146.99	16688.4	10035.9	20.79	12.47	1664
850.0	0.01290	148.25	17727.7	10659.4	20.79	12.47	1716
900.0	0.01219	149.44	18767.0	11283.0	20.79	12.47	1765
950.0	0.01154	150.56	19806.2	11906.6	20.79	12.47	1814
1000.0	0.01097	151.63	20845.5	12530.1	20.79	12.47	1861
1100.0	0.00997	153.61	22924.1	13777.3	20.79	12.47	1951
1200.0	0.00914	155.42	25002.6	15024.4	20.79	12.47	2038
1300.0	0.00844	157.08	27081.2	16271.5	20.79	12.47	2121
1400.0	0.00783	158.62	29159.7	17518.6	20.79	12.47	2202
1500.0	0.00731	160.05	31238.3	18765.8	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

1.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.67658	7.83	18.3	15.6	8.43	7.76	221
3.0	35.78438	9.49	22.9	20.1	9.91	8.27	214
3.5	34.50478	11.16	28.3	25.4	12.02	8.84	200
4.0	32.62658	12.98	35.2	32.1	15.75	9.37	179
* 4.224	31.40648	13.92	39.0	35.8	19.19	9.64	167
* 4.224	4.22450	33.33	121.3	97.3	36.98	12.73	100
4.5	3.63778	35.46	130.5	102.7	31.06	12.61	108
5.0	2.99678	38.48	144.8	111.0	26.89	12.50	119
5.5	2.58734	40.94	157.8	118.6	25.04	12.45	128
6.0	2.29238	43.07	170.0	125.8	23.99	12.43	137
6.5	2.06579	44.97	181.8	132.8	23.33	12.43	144
7.0	1.88447	46.68	193.4	139.6	22.87	12.43	151
7.5	1.73517	48.24	204.7	146.3	22.53	12.43	157
8.0	1.60956	49.69	215.9	153.0	22.28	12.44	163
8.5	1.50212	51.03	227.0	159.5	22.08	12.44	169
9.0	1.40897	52.29	238.0	166.1	21.93	12.45	174
9.5	1.32731	53.47	248.9	172.6	21.80	12.45	180
10.0	1.25505	54.59	259.8	179.1	21.69	12.46	185
11.0	1.13269	56.65	281.4	191.9	21.53	12.46	194
12.0	1.03282	58.52	302.9	204.8	21.40	12.47	203
13.0	0.94962	60.22	324.2	217.5	21.31	12.47	212
14.0	0.87914	61.80	345.5	230.2	21.24	12.47	220
15.0	0.81863	63.26	366.7	242.9	21.18	12.48	228
16.0	0.76606	64.63	387.9	255.6	21.13	12.48	236
17.0	0.71995	65.91	409.0	268.2	21.09	12.48	243
18.0	0.67915	67.11	430.0	280.9	21.06	12.48	250
19.0	0.64280	68.25	451.1	293.5	21.03	12.48	257
20.0	0.61018	69.33	472.1	306.1	21.01	12.48	264
22.0	0.55407	71.33	514.1	331.2	20.97	12.48	277
24.0	0.50749	73.15	556.0	356.3	20.94	12.48	289
26.0	0.46819	74.83	597.8	381.4	20.92	12.48	301
28.0	0.43458	76.38	639.7	406.5	20.90	12.48	313
30.0	0.40549	77.82	681.4	431.6	20.88	12.48	323
32.0	0.38008	79.17	723.2	456.6	20.87	12.48	334
34.0	0.35767	80.43	764.9	481.6	20.86	12.48	344
36.0	0.33777	81.62	806.6	506.6	20.85	12.48	354
38.0	0.31998	82.75	848.3	531.7	20.85	12.48	364
40.0	0.30397	83.82	890.0	556.7	20.84	12.48	373
45.0	0.27019	86.27	994.2	619.2	20.83	12.48	396
50.0	0.24319	88.47	1098.3	681.6	20.82	12.48	417
55.0	0.22110	90.45	1202.4	744.1	20.81	12.48	437
60.0	0.20269	92.26	1306.4	806.5	20.81	12.48	457
65.0	0.18711	93.93	1410.4	868.9	20.80	12.48	475
70.0	0.17376	95.47	1514.5	931.3	20.80	12.48	493
75.0	0.16219	96.90	1618.5	993.7	20.80	12.48	511
80.0	0.15207	98.25	1722.4	1056.1	20.80	12.48	527
85.0	0.14314	99.51	1826.4	1118.5	20.80	12.47	543
90.0	0.13519	100.70	1930.4	1180.9	20.79	12.47	559
95.0	0.12809	101.82	2034.4	1243.3	20.79	12.47	574
100.0	0.12169	102.89	2138.3	1305.7	20.79	12.47	589

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

1.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.11064	104.87	2346.2	1430.4	20.79	12.47	618
120.0	0.10143	106.68	2554.1	1555.2	20.79	12.47	645
130.0	0.09364	108.34	2762.0	1679.9	20.79	12.47	672
140.0	0.08696	109.88	2969.9	1804.6	20.79	12.47	697
150.0	0.08116	111.32	3177.8	1929.4	20.79	12.47	721
160.0	0.07610	112.66	3385.7	2054.1	20.79	12.47	745
170.0	0.07162	113.92	3593.6	2178.8	20.79	12.47	768
180.0	0.06765	115.11	3801.4	2303.6	20.79	12.47	790
190.0	0.06409	116.23	4009.3	2428.3	20.79	12.47	812
200.0	0.06089	117.30	4217.2	2553.0	20.79	12.47	833
210.0	0.05799	118.31	4425.0	2677.7	20.79	12.47	853
220.0	0.05536	119.28	4632.9	2802.5	20.79	12.47	873
230.0	0.05295	120.20	4840.8	2927.2	20.79	12.47	893
240.0	0.05075	121.09	5048.6	3051.9	20.79	12.47	912
250.0	0.04872	121.94	5256.5	3176.6	20.79	12.47	931
260.0	0.04685	122.75	5464.3	3301.3	20.79	12.47	949
270.0	0.04511	123.53	5672.2	3426.1	20.79	12.47	967
280.0	0.04350	124.29	5880.1	3550.8	20.79	12.47	985
290.0	0.04200	125.02	6087.9	3675.5	20.79	12.47	1002
300.0	0.04060	125.72	6295.8	3800.2	20.79	12.47	1020
310.0	0.03929	126.41	6503.6	3924.9	20.79	12.47	1036
320.0	0.03807	127.07	6711.5	4049.6	20.79	12.47	1053
330.0	0.03691	127.71	6919.3	4174.4	20.79	12.47	1069
340.0	0.03583	128.33	7127.2	4299.1	20.79	12.47	1085
350.0	0.03481	128.93	7335.1	4423.8	20.79	12.47	1101
360.0	0.03384	129.51	7542.9	4548.5	20.79	12.47	1117
370.0	0.03292	130.08	7750.8	4673.2	20.79	12.47	1132
380.0	0.03206	130.64	7958.6	4797.9	20.79	12.47	1147
390.0	0.03124	131.18	8166.5	4922.6	20.79	12.47	1162
400.0	0.03046	131.70	8374.3	5047.4	20.79	12.47	1177
420.0	0.02901	132.72	8790.1	5296.8	20.79	12.47	1206
440.0	0.02769	133.69	9205.8	5546.2	20.79	12.47	1234
460.0	0.02649	134.61	9621.5	5795.6	20.79	12.47	1262
480.0	0.02538	135.49	10037.2	6045.1	20.79	12.47	1289
500.0	0.02437	136.34	10452.9	6294.5	20.79	12.47	1316
550.0	0.02215	138.32	11492.2	6918.1	20.79	12.47	1380
600.0	0.02031	140.13	12531.4	7541.6	20.79	12.47	1441
650.0	0.01875	141.80	13570.7	8165.2	20.79	12.47	1500
700.0	0.01741	143.34	14610.0	8788.8	20.79	12.47	1557
750.0	0.01625	144.77	15649.3	9412.3	20.79	12.47	1611
800.0	0.01523	146.11	16688.5	10035.9	20.79	12.47	1664
850.0	0.01434	147.37	17727.8	10659.5	20.79	12.47	1716
900.0	0.01354	148.56	18767.1	11283.0	20.79	12.47	1765
950.0	0.01283	149.68	19806.4	11906.6	20.79	12.47	1814
1000.0	0.01219	150.75	20845.6	12530.2	20.79	12.47	1861
1100.0	0.01108	152.73	22924.2	13777.3	20.79	12.47	1951
1200.0	0.01015	154.54	25002.8	15024.4	20.79	12.47	2038
1300.0	0.00937	156.20	27081.3	16271.5	20.79	12.47	2121
1400.0	0.00870	157.74	29159.9	17518.7	20.79	12.47	2202
1500.0	0.00812	159.18	31238.4	18765.8	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

1.5 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	36.95092	7.78	19.6	15.5	8.29	7.65	227
3.0	36.10448	9.41	24.1	19.8	9.72	8.18	221
3.5	34.91427	11.04	29.4	25.0	11.65	8.75	208
4.0	33.23578	12.77	35.9	31.3	14.71	9.27	189
4.5	30.48935	14.87	44.8	39.8	22.91	9.85	162
* 4.685	28.70513	15.97	49.9	44.6	33.32	10.16	147
* 4.685	6.78008	30.38	117.6	95.1	58.82	12.55	100
5.0	5.37844	33.30	131.7	103.4	37.17	12.48	111
5.5	4.33523	36.42	148.0	112.9	29.64	12.42	123
6.0	3.71760	38.86	162.0	121.1	26.78	12.40	132
6.5	3.28599	40.94	175.0	128.7	25.26	12.40	141
7.0	2.95954	42.77	187.4	136.0	24.31	12.40	148
7.5	2.70059	44.42	199.3	143.1	23.67	12.41	155
8.0	2.48846	45.94	211.1	150.0	23.21	12.41	162
8.5	2.31054	47.33	222.6	156.8	22.86	12.42	168
9.0	2.15860	48.63	233.9	163.5	22.59	12.43	173
9.5	2.02699	49.85	245.2	170.2	22.37	12.44	179
10.0	1.91165	50.99	256.3	176.8	22.20	12.45	184
11.0	1.71849	53.09	278.4	189.9	21.93	12.46	194
12.0	1.56259	54.99	300.2	202.9	21.73	12.47	203
13.0	1.43376	56.72	321.8	215.8	21.59	12.47	212
14.0	1.32531	58.32	343.4	228.7	21.47	12.48	220
15.0	1.23261	59.80	364.8	241.5	21.38	12.48	228
16.0	1.15239	61.18	386.1	254.2	21.31	12.48	236
17.0	1.08223	62.46	407.4	267.0	21.25	12.48	244
18.0	1.02031	63.68	428.6	279.7	21.20	12.49	251
19.0	0.96523	64.82	449.8	292.3	21.15	12.49	258
20.0	0.91591	65.91	470.9	305.0	21.12	12.49	265
22.0	0.83119	67.92	513.1	330.3	21.06	12.49	278
24.0	0.76102	69.75	555.2	355.5	21.02	12.49	290
26.0	0.70189	71.43	597.2	380.6	20.98	12.49	302
28.0	0.65137	72.98	639.1	405.8	20.95	12.49	313
30.0	0.60770	74.43	681.0	430.9	20.93	12.49	324
32.0	0.56955	75.78	722.9	456.0	20.91	12.49	335
34.0	0.53595	77.04	764.7	481.1	20.90	12.48	345
36.0	0.50610	78.24	806.4	506.1	20.89	12.48	355
38.0	0.47943	79.37	848.2	531.2	20.87	12.48	365
40.0	0.45543	80.44	889.9	556.2	20.87	12.48	374
45.0	0.40483	82.89	994.2	618.8	20.85	12.48	396
50.0	0.36437	85.09	1098.4	681.3	20.84	12.48	418
55.0	0.33128	87.08	1202.6	743.8	20.83	12.48	438
60.0	0.30372	88.89	1306.7	806.3	20.82	12.48	457
65.0	0.28039	90.55	1410.8	868.7	20.81	12.48	476
70.0	0.26040	92.10	1514.8	931.1	20.81	12.48	494
75.0	0.24307	93.53	1618.9	993.6	20.81	12.48	511
80.0	0.22791	94.87	1722.9	1056.0	20.80	12.48	528
85.0	0.21453	96.14	1826.9	1118.4	20.80	12.48	544
90.0	0.20263	97.32	1930.9	1180.8	20.80	12.48	560
95.0	0.19199	98.45	2034.9	1243.2	20.80	12.48	575
100.0	0.18240	99.52	2138.8	1305.6	20.80	12.48	590

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

5 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.16585	101.50	2346.8	1430.4	20.79	12.48	618
120.0	0.15205	103.31	2554.7	1555.1	20.79	12.48	646
130.0	0.14037	104.97	2762.6	1679.9	20.79	12.47	672
140.0	0.13036	106.51	2970.5	1804.6	20.79	12.47	697
150.0	0.12169	107.95	3178.4	1929.4	20.79	12.47	722
160.0	0.11409	109.29	3386.3	2054.1	20.79	12.47	745
170.0	0.10739	110.55	3594.2	2178.8	20.79	12.47	768
180.0	0.10143	111.74	3802.1	2303.6	20.79	12.47	790
190.0	0.09610	112.86	4009.9	2428.3	20.79	12.47	812
200.0	0.09130	113.93	4217.8	2553.0	20.79	12.47	833
210.0	0.08696	114.94	4425.7	2677.8	20.79	12.47	853
220.0	0.08301	115.91	4633.6	2802.5	20.79	12.47	874
230.0	0.07940	116.83	4841.4	2927.2	20.79	12.47	893
240.0	0.07610	117.72	5049.3	3051.9	20.79	12.47	912
250.0	0.07306	118.56	5257.1	3176.7	20.79	12.47	931
260.0	0.07025	119.38	5465.0	3301.4	20.79	12.47	949
270.0	0.06765	120.16	5672.9	3426.1	20.79	12.47	967
280.0	0.06524	120.92	5880.7	3550.8	20.79	12.47	985
290.0	0.06299	121.65	6088.6	3675.5	20.79	12.47	1003
300.0	0.06089	122.35	6296.4	3800.3	20.79	12.47	1020
310.0	0.05893	123.04	6504.3	3925.0	20.79	12.47	1037
320.0	0.05709	123.70	6712.2	4049.7	20.79	12.47	1053
330.0	0.05536	124.33	6920.0	4174.4	20.79	12.47	1069
340.0	0.05373	124.96	7127.9	4299.1	20.79	12.47	1085
350.0	0.05220	125.56	7335.7	4423.9	20.79	12.47	1101
360.0	0.05075	126.14	7543.6	4548.6	20.79	12.47	1117
370.0	0.04938	126.71	7751.4	4673.3	20.79	12.47	1132
380.0	0.04808	127.27	7959.3	4798.0	20.79	12.47	1147
390.0	0.04685	127.81	8167.2	4922.7	20.79	12.47	1162
400.0	0.04568	128.33	8375.0	5047.4	20.79	12.47	1177
420.0	0.04350	129.35	8790.7	5296.9	20.79	12.47	1206
440.0	0.04153	130.31	9206.4	5546.3	20.79	12.47	1235
460.0	0.03972	131.24	9622.1	5795.7	20.79	12.47	1262
480.0	0.03807	132.12	10037.8	6045.2	20.79	12.47	1290
500.0	0.03655	132.97	10453.6	6294.6	20.79	12.47	1316
550.0	0.03322	134.95	11492.8	6918.2	20.79	12.47	1380
600.0	0.03046	136.76	12532.1	7541.8	20.79	12.47	1442
650.0	0.02812	138.42	13571.4	8165.3	20.79	12.47	1500
700.0	0.02611	139.97	14610.6	8788.9	20.79	12.47	1557
750.0	0.02437	141.40	15649.9	9412.5	20.79	12.47	1612
800.0	0.02285	142.74	16689.2	10036.0	20.79	12.47	1664
850.0	0.02150	144.00	17728.5	10659.6	20.79	12.47	1716
900.0	0.02031	145.19	18767.7	11283.2	20.79	12.47	1765
950.0	0.01924	146.31	19807.0	11906.7	20.79	12.47	1814
1000.0	0.01828	147.38	20846.3	12530.3	20.79	12.47	1861
1100.0	0.01662	149.36	22924.8	13777.4	20.79	12.47	1952
1200.0	0.01523	151.17	25003.4	15024.6	20.79	12.47	2038
1300.0	0.01406	152.83	27081.9	16271.7	20.79	12.47	2122
1400.0	0.01306	154.37	29160.5	17518.8	20.79	12.47	2202
1500.0	0.01219	155.81	31239.0	18766.0	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

2.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	37.21024	7.73	20.8	15.4	8.15	7.54	233
3.0	36.40317	9.33	25.2	19.7	9.55	8.10	227
3.5	35.28699	10.93	30.4	24.7	11.34	8.68	215
4.0	33.75975	12.60	36.7	30.7	13.96	9.18	198
4.5	31.45337	14.52	44.9	38.4	19.62	9.71	175
5.0	26.08012	17.74	60.3	52.5	64.30	10.59	135
5.047	24.58104	18.50	64.1	55.9	108.92	10.79	127
5.047	10.94126	26.82	106.2	87.6	195.74	12.26	101
5.5	6.77591	32.38	135.2	105.3	40.31	12.36	116
6.0	5.45984	35.42	152.7	115.6	31.35	12.35	128
6.5	4.68887	37.78	167.4	124.2	27.97	12.35	138
7.0	4.15243	39.79	180.9	132.1	26.17	12.36	146
7.5	3.74737	41.55	193.7	139.6	25.05	12.38	153
8.0	3.42615	43.14	206.0	146.9	24.29	12.39	160
8.5	3.16289	44.60	218.0	153.9	23.74	12.40	166
9.0	2.94190	45.94	229.8	160.9	23.32	12.42	172
9.5	2.75298	47.19	241.3	167.7	22.99	12.43	178
10.0	2.58912	48.36	252.8	174.5	22.73	12.44	183
11.0	2.31789	50.51	275.3	187.9	22.35	12.45	194
12.0	2.10153	52.44	297.5	201.1	22.07	12.46	203
13.0	1.92423	54.20	319.5	214.1	21.87	12.47	212
14.0	1.77589	55.82	341.2	227.1	21.71	12.48	221
15.0	1.64971	57.31	362.9	240.0	21.59	12.48	229
16.0	1.54091	58.70	384.4	252.9	21.49	12.49	236
17.0	1.44604	60.00	405.9	265.7	21.40	12.49	244
18.0	1.36251	61.22	427.2	278.5	21.34	12.49	251
19.0	1.28835	62.37	448.5	291.2	21.28	12.49	258
20.0	1.22204	63.46	469.8	304.0	21.23	12.49	265
22.0	1.10838	65.48	512.2	329.3	21.15	12.49	278
24.0	1.01440	67.32	554.4	354.6	21.09	12.49	290
26.0	0.93533	69.01	596.5	379.9	21.05	12.49	302
28.0	0.86785	70.56	638.6	405.1	21.01	12.49	314
30.0	0.80955	72.01	680.6	430.3	20.98	12.49	325
32.0	0.75866	73.37	722.5	455.4	20.96	12.49	335
34.0	0.71385	74.64	764.4	480.5	20.94	12.49	345
36.0	0.67407	75.83	806.3	505.6	20.92	12.49	355
38.0	0.63852	76.96	848.1	530.7	20.90	12.49	365
40.0	0.60656	78.03	889.9	555.8	20.89	12.49	375
45.0	0.53915	80.49	994.3	618.4	20.87	12.49	397
50.0	0.48528	82.69	1098.6	681.0	20.85	12.48	418
55.0	0.44123	84.68	1202.8	743.5	20.84	12.48	439
60.0	0.40454	86.49	1307.0	806.0	20.83	12.48	458
65.0	0.37349	88.16	1411.1	868.5	20.82	12.48	476
70.0	0.34687	89.70	1515.2	930.9	20.82	12.48	494
75.0	0.32380	91.14	1619.3	993.4	20.81	12.48	512
80.0	0.30361	92.48	1723.3	1055.8	20.81	12.48	528
85.0	0.28580	93.74	1827.3	1118.3	20.81	12.48	544
90.0	0.26996	94.93	1931.4	1180.7	20.80	12.48	560
95.0	0.25579	96.06	2035.4	1243.1	20.80	12.48	575
100.0	0.24303	97.12	2139.4	1305.5	20.80	12.48	590

* PHASE CHANGE

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

2.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.22099	99.10	2347.3	1430.3	20.80	12.48	619
120.0	0.20261	100.91	2555.3	1555.1	20.79	12.48	646
130.0	0.18706	102.58	2763.2	1679.8	20.79	12.48	672
140.0	0.17372	104.12	2971.1	1804.6	20.79	12.48	698
150.0	0.16217	105.55	3179.0	1929.4	20.79	12.48	722
160.0	0.15205	106.90	3386.9	2054.1	20.79	12.47	746
170.0	0.14312	108.16	3594.8	2178.8	20.79	12.47	768
180.0	0.13518	109.34	3802.7	2303.6	20.79	12.47	791
190.0	0.12808	110.47	4010.6	2428.3	20.79	12.47	812
200.0	0.12169	111.53	4218.5	2553.1	20.79	12.47	833
210.0	0.11590	112.55	4426.3	2677.8	20.79	12.47	854
220.0	0.11064	113.52	4634.2	2802.5	20.79	12.47	874
230.0	0.10584	114.44	4842.1	2927.3	20.79	12.47	893
240.0	0.10143	115.32	5049.9	3052.0	20.79	12.47	913
250.0	0.09738	116.17	5257.8	3176.7	20.79	12.47	931
260.0	0.09364	116.99	5465.7	3301.4	20.79	12.47	950
270.0	0.09017	117.77	5673.5	3426.2	20.79	12.47	968
280.0	0.08696	118.53	5881.4	3550.9	20.79	12.47	985
290.0	0.08396	119.26	6089.3	3675.6	20.79	12.47	1003
300.0	0.08117	119.96	6297.1	3800.3	20.79	12.47	1020
310.0	0.07855	120.64	6505.0	3925.1	20.79	12.47	1037
320.0	0.07610	121.30	6712.8	4049.8	20.79	12.47	1053
330.0	0.07380	121.94	6920.7	4174.5	20.79	12.47	1070
340.0	0.07163	122.56	7128.5	4299.2	20.79	12.47	1086
350.0	0.06958	123.17	7336.4	4423.9	20.79	12.47	1102
360.0	0.06765	123.75	7544.3	4548.7	20.79	12.47	1117
370.0	0.06582	124.32	7752.1	4673.4	20.79	12.47	1133
380.0	0.06409	124.88	7960.0	4798.1	20.79	12.47	1148
390.0	0.06245	125.42	8167.8	4922.8	20.79	12.47	1163
400.0	0.06089	125.94	8375.7	5047.5	20.79	12.47	1177
420.0	0.05799	126.96	8791.4	5297.0	20.79	12.47	1206
440.0	0.05536	127.92	9207.1	5546.4	20.79	12.47	1235
460.0	0.05295	128.85	9622.8	5795.8	20.79	12.47	1263
480.0	0.05075	129.73	10038.5	6045.3	20.79	12.47	1290
500.0	0.04872	130.58	10454.2	6294.7	20.79	12.47	1316
550.0	0.04429	132.56	11493.5	6918.3	20.79	12.47	1380
600.0	0.04061	134.37	12532.8	7541.9	20.79	12.47	1442
650.0	0.03748	136.03	13572.0	8165.4	20.79	12.47	1501
700.0	0.03481	137.57	14611.3	8789.0	20.79	12.47	1557
750.0	0.03249	139.01	15650.6	9412.6	20.79	12.47	1612
800.0	0.03046	140.35	16689.8	10036.2	20.79	12.47	1665
850.0	0.02867	141.61	17729.1	10659.7	20.79	12.47	1716
900.0	0.02707	142.80	18768.4	11283.3	20.79	12.47	1765
950.0	0.02565	143.92	19807.6	11906.9	20.79	12.47	1814
1000.0	0.02437	144.99	20846.9	12530.5	20.79	12.47	1861
1100.0	0.02215	146.97	22925.4	13777.6	20.79	12.47	1952
1200.0	0.02031	148.78	25004.0	15024.7	20.79	12.47	2038
1300.0	0.01875	150.44	27082.5	16271.9	20.79	12.47	2122
1400.0	0.01741	151.98	29161.1	17519.0	20.79	12.47	2202
1500.0	0.01625	153.42	31239.6	18766.2	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

2.5 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	37.45642	7.68	22.1	15.3	8.02	7.43	239
3.0	36.68364	9.26	26.4	19.5	9.40	8.02	233
3.5	35.62998	10.83	31.5	24.4	11.09	8.61	222
4.0	34.22229	12.45	37.6	30.2	13.39	9.11	206
4.5	32.20627	14.24	45.2	37.3	17.73	9.60	185
5.0	28.59820	16.67	56.8	48.0	32.91	10.25	155
5.5	11.33143	27.52	114.4	92.1	87.15	12.13	112
6.0	7.73395	32.23	141.3	108.6	39.73	12.27	124
6.5	6.34434	35.04	158.9	118.9	31.90	12.30	135
7.0	5.49277	37.27	173.9	127.8	28.57	12.32	143
7.5	4.88992	39.17	187.7	135.9	26.72	12.34	151
8.0	4.43032	40.86	200.7	143.5	25.54	12.36	159
8.5	4.06349	42.38	213.3	150.9	24.72	12.38	165
9.0	3.76137	43.77	225.5	158.1	24.12	12.40	171
9.5	3.50676	45.07	237.4	165.2	23.67	12.41	177
10.0	3.28836	46.27	249.2	172.1	23.31	12.43	183
11.0	2.93121	48.47	272.2	185.8	22.78	12.45	193
12.0	2.64974	50.43	294.8	199.2	22.42	12.46	203
13.0	2.42104	52.22	317.1	212.4	22.15	12.47	212
14.0	2.23088	53.85	339.1	225.6	21.95	12.48	221
15.0	2.06989	55.36	361.0	238.6	21.79	12.48	229
16.0	1.93159	56.76	382.7	251.6	21.66	12.49	237
17.0	1.81134	58.07	404.3	264.5	21.56	12.49	244
18.0	1.70571	59.30	425.8	277.3	21.47	12.49	252
19.0	1.61213	60.46	447.3	290.1	21.40	12.50	259
20.0	1.52857	61.56	468.6	302.9	21.34	12.50	265
22.0	1.38561	63.58	511.2	328.4	21.24	12.50	279
24.0	1.26763	65.43	553.6	353.8	21.17	12.50	291
26.0	1.16851	67.12	595.9	379.1	21.11	12.50	303
28.0	1.08399	68.68	638.1	404.4	21.06	12.50	314
30.0	1.01104	70.14	680.2	429.6	21.03	12.50	325
32.0	0.94740	71.49	722.2	454.8	21.00	12.49	336
34.0	0.89138	72.76	764.1	480.0	20.97	12.49	346
36.0	0.84167	73.96	806.1	505.1	20.95	12.49	356
38.0	0.79726	75.09	848.0	530.2	20.93	12.49	366
40.0	0.75734	76.17	889.8	555.3	20.92	12.49	375
45.0	0.67318	78.63	994.3	618.0	20.89	12.49	398
50.0	0.60593	80.83	1098.7	680.6	20.87	12.49	419
55.0	0.55095	82.82	1203.0	743.2	20.85	12.49	439
60.0	0.50515	84.63	1307.2	805.8	20.84	12.48	458
65.0	0.46640	86.30	1411.4	868.3	20.83	12.48	477
70.0	0.43318	87.84	1515.5	930.8	20.82	12.48	495
75.0	0.40439	89.28	1619.7	993.2	20.82	12.48	512
80.0	0.37919	90.62	1723.7	1055.7	20.81	12.48	529
85.0	0.35695	91.88	1827.8	1118.1	20.81	12.48	545
90.0	0.33718	93.07	1931.8	1180.6	20.81	12.48	560
95.0	0.31949	94.20	2035.9	1243.0	20.80	12.48	576
100.0	0.30357	95.27	2139.9	1305.4	20.80	12.48	591

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

2.5 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.27605	97.25	2347.9	1430.2	20.80	12.48	619
120.0	0.25311	99.06	2555.9	1555.0	20.80	12.48	647
130.0	0.23369	100.72	2763.8	1679.8	20.79	12.48	673
140.0	0.21704	102.26	2971.7	1804.6	20.79	12.48	698
150.0	0.20261	103.70	3179.6	1929.3	20.79	12.48	722
160.0	0.18997	105.04	3387.6	2054.1	20.79	12.48	746
170.0	0.17882	106.30	3595.5	2178.9	20.79	12.48	769
180.0	0.16891	107.49	3803.3	2303.6	20.79	12.48	791
190.0	0.16004	108.61	4011.2	2428.3	20.79	12.48	813
200.0	0.15205	109.68	4219.1	2553.1	20.79	12.47	834
210.0	0.14482	110.69	4427.0	2677.8	20.79	12.47	854
220.0	0.13825	111.66	4634.9	2802.6	20.79	12.47	874
230.0	0.13225	112.58	4842.7	2927.3	20.79	12.47	894
240.0	0.12675	113.47	5050.6	3052.0	20.79	12.47	913
250.0	0.12169	114.32	5258.5	3176.8	20.79	12.47	932
260.0	0.11702	115.13	5466.3	3301.5	20.79	12.47	950
270.0	0.11269	115.92	5674.2	3426.2	20.79	12.47	968
280.0	0.10867	116.67	5882.1	3550.9	20.79	12.47	986
290.0	0.10493	117.40	6089.9	3675.7	20.79	12.47	1003
300.0	0.10143	118.11	6297.8	3800.4	20.79	12.47	1020
310.0	0.09817	118.79	6505.6	3925.1	20.79	12.47	1037
320.0	0.09510	119.45	6713.5	4049.8	20.79	12.47	1054
330.0	0.09222	120.09	6921.4	4174.6	20.79	12.47	1070
340.0	0.08951	120.71	7129.2	4299.3	20.79	12.47	1086
350.0	0.08696	121.31	7337.1	4424.0	20.79	12.47	1102
360.0	0.08455	121.90	7544.9	4548.7	20.79	12.47	1117
370.0	0.08226	122.47	7752.8	4673.5	20.79	12.47	1133
380.0	0.08010	123.02	7960.6	4798.2	20.79	12.47	1148
390.0	0.07805	123.56	8168.5	4922.9	20.79	12.47	1163
400.0	0.07610	124.09	8376.3	5047.6	20.79	12.47	1178
420.0	0.07248	125.10	8792.1	5297.1	20.79	12.47	1207
440.0	0.06919	126.07	9207.8	5546.5	20.79	12.47	1235
460.0	0.06618	126.99	9623.5	5795.9	20.79	12.47	1263
480.0	0.06343	127.88	10039.2	6045.4	20.79	12.47	1290
500.0	0.06089	128.72	10454.9	6294.8	20.79	12.47	1316
550.0	0.05536	130.71	11494.1	6918.4	20.79	12.47	1381
600.0	0.05075	132.51	12533.4	7542.0	20.79	12.47	1442
650.0	0.04685	134.18	13572.7	8165.6	20.79	12.47	1501
700.0	0.04350	135.72	14611.9	8789.1	20.79	12.47	1557
750.0	0.04061	137.15	15651.2	9412.7	20.79	12.47	1612
800.0	0.03807	138.49	16690.5	10036.3	20.79	12.47	1665
850.0	0.03583	139.75	17729.7	10659.9	20.79	12.47	1716
900.0	0.03384	140.94	18769.0	11283.4	20.79	12.47	1766
950.0	0.03206	142.07	19808.3	11907.0	20.79	12.47	1814
1000.0	0.03046	143.13	20847.5	12530.6	20.79	12.47	1861
1100.0	0.02769	145.11	22926.0	13777.7	20.79	12.47	1952
1200.0	0.02538	146.92	25004.6	15024.9	20.79	12.47	2038
1300.0	0.02343	148.59	27083.1	16272.0	20.79	12.47	2122
1400.0	0.02176	150.13	29161.6	17519.2	20.79	12.47	2202
1500.0	0.02031	151.56	31240.2	18766.3	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

3.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	37.69099	7.64	23.3	15.2	7.90	7.33	244
3.0	36.94836	9.19	27.6	19.3	9.26	7.95	239
3.5	35.94837	10.74	32.6	24.1	10.87	8.55	229
4.0	34.63814	12.31	38.5	29.7	12.94	9.05	214
4.5	32.83219	14.02	45.8	36.5	16.47	9.52	195
5.0	29.95634	16.13	55.8	45.7	25.54	10.07	169
5.5	22.01130	20.68	80.0	66.1	108.31	11.15	130
6.0	10.96566	28.90	126.9	99.2	56.06	12.11	122
6.5	8.35052	32.49	149.2	112.8	37.62	12.22	133
7.0	7.01544	35.02	166.3	123.0	31.65	12.27	142
7.5	6.14344	37.10	181.4	131.9	28.71	12.30	150
8.0	5.50835	38.89	195.2	140.1	26.97	12.33	157
8.5	5.01618	40.49	208.4	147.8	25.81	12.36	164
9.0	4.61909	41.94	221.1	155.3	24.99	12.38	171
9.5	4.28946	43.27	233.4	162.6	24.39	12.40	177
10.0	4.00997	44.51	245.5	169.7	23.92	12.41	182
11.0	3.55861	46.76	269.1	183.6	23.24	12.44	193
12.0	3.20721	48.76	292.1	197.3	22.78	12.46	203
13.0	2.92411	50.57	314.7	210.7	22.44	12.47	212
14.0	2.69019	52.22	337.0	224.0	22.19	12.48	221
15.0	2.49308	53.75	359.1	237.1	22.00	12.49	229
16.0	2.32436	55.16	381.0	250.2	21.84	12.49	237
17.0	2.17808	56.48	402.8	263.2	21.72	12.50	245
18.0	2.04990	57.72	424.4	276.1	21.61	12.50	252
19.0	1.93653	58.89	446.0	289.0	21.53	12.50	259
20.0	1.83547	59.99	467.5	301.9	21.45	12.50	266
22.0	1.66288	62.03	510.3	327.5	21.33	12.50	279
24.0	1.52071	63.88	552.8	352.9	21.24	12.50	292
26.0	1.40142	65.58	595.2	378.3	21.17	12.50	303
28.0	1.29982	67.14	637.5	403.7	21.12	12.50	315
30.0	1.21218	68.60	679.7	429.0	21.08	12.50	326
32.0	1.13577	69.96	721.8	454.2	21.04	12.50	336
34.0	1.06854	71.23	763.9	479.4	21.01	12.50	347
36.0	1.00892	72.43	805.9	504.6	20.98	12.50	357
38.0	0.95566	73.57	847.8	529.7	20.96	12.50	366
40.0	0.90779	74.64	889.7	554.9	20.94	12.49	376
45.0	0.80690	77.11	994.4	617.6	20.91	12.49	398
50.0	0.72632	79.31	1098.8	680.3	20.88	12.49	419
55.0	0.66044	81.30	1203.2	742.9	20.87	12.49	440
60.0	0.60556	83.11	1307.5	805.5	20.85	12.49	459
65.0	0.55912	84.78	1411.7	868.0	20.84	12.49	478
70.0	0.51933	86.32	1515.9	930.6	20.83	12.48	495
75.0	0.48483	87.76	1620.0	993.1	20.83	12.48	513
80.0	0.45464	89.11	1724.2	1055.5	20.82	12.48	529
85.0	0.42799	90.37	1828.2	1118.0	20.82	12.48	545
90.0	0.40430	91.56	1932.3	1180.4	20.81	12.48	561
95.0	0.38310	92.68	2036.4	1242.9	20.81	12.48	576
100.0	0.36402	93.75	2140.4	1305.3	20.81	12.48	591

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

3.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.33104	95.73	2348.4	1430.1	20.80	12.48	620
120.0	0.30354	97.54	2556.4	1555.0	20.80	12.48	647
130.0	0.28027	99.21	2764.4	1679.8	20.80	12.48	673
140.0	0.26031	100.75	2972.3	1804.6	20.79	12.48	698
150.0	0.24301	102.18	3180.3	1929.3	20.79	12.48	723
160.0	0.22786	103.52	3388.2	2054.1	20.79	12.48	746
170.0	0.21449	104.78	3596.1	2178.9	20.79	12.48	769
180.0	0.20261	105.97	3804.0	2303.6	20.79	12.48	791
190.0	0.19197	107.10	4011.9	2428.4	20.79	12.48	813
200.0	0.18239	108.16	4219.8	2553.1	20.79	12.48	834
210.0	0.17373	109.18	4427.6	2677.9	20.79	12.48	854
220.0	0.16585	110.14	4635.5	2802.6	20.79	12.48	874
230.0	0.15865	111.07	4843.4	2927.3	20.79	12.48	894
240.0	0.15205	111.95	5051.3	3052.1	20.79	12.47	913
250.0	0.14598	112.80	5259.1	3176.8	20.79	12.47	932
260.0	0.14038	113.62	5467.0	3301.5	20.79	12.47	950
270.0	0.13519	114.40	5674.9	3426.3	20.79	12.47	968
280.0	0.13037	115.16	5882.7	3551.0	20.79	12.47	986
290.0	0.12588	115.89	6090.6	3675.7	20.79	12.47	1003
300.0	0.12169	116.59	6298.5	3800.5	20.79	12.47	1020
310.0	0.11777	117.27	6506.3	3925.2	20.79	12.47	1037
320.0	0.11410	117.93	6714.2	4049.9	20.79	12.47	1054
330.0	0.11064	118.57	6922.0	4174.6	20.79	12.47	1070
340.0	0.10739	119.19	7129.9	4299.4	20.79	12.47	1086
350.0	0.10433	119.80	7337.7	4424.1	20.79	12.47	1102
360.0	0.10144	120.38	7545.6	4548.8	20.79	12.47	1118
370.0	0.09870	120.95	7753.5	4673.5	20.79	12.47	1133
380.0	0.09610	121.50	7961.3	4798.3	20.79	12.47	1148
390.0	0.09364	122.04	8169.2	4923.0	20.79	12.47	1163
400.0	0.09131	122.57	8377.0	5047.7	20.79	12.47	1178
420.0	0.08696	123.59	8792.7	5297.1	20.79	12.47	1207
440.0	0.08301	124.55	9208.4	5546.6	20.79	12.47	1235
460.0	0.07941	125.48	9624.1	5796.0	20.79	12.47	1263
480.0	0.07610	126.36	10039.8	6045.5	20.79	12.47	1290
500.0	0.07306	127.21	10455.5	6294.9	20.79	12.47	1317
550.0	0.06643	129.19	11494.8	6918.5	20.79	12.47	1381
600.0	0.06089	131.00	12534.1	7542.1	20.79	12.47	1442
650.0	0.05621	132.66	13573.3	8165.7	20.79	12.47	1501
700.0	0.05220	134.20	14612.6	8789.3	20.79	12.47	1557
750.0	0.04872	135.64	15651.8	9412.8	20.79	12.47	1612
800.0	0.04568	136.98	16691.1	10036.4	20.79	12.47	1665
850.0	0.04299	138.24	17730.4	10660.0	20.79	12.47	1716
900.0	0.04061	139.43	18769.6	11283.6	20.79	12.47	1766
950.0	0.03847	140.55	19808.9	11907.2	20.79	12.47	1814
1000.0	0.03655	141.62	20848.1	12530.7	20.79	12.47	1861
1100.0	0.03323	143.60	22926.7	13777.9	20.79	12.47	1952
1200.0	0.03046	145.41	25005.2	15025.1	20.79	12.47	2039
1300.0	0.02812	147.07	27083.7	16272.2	20.79	12.47	2122
1400.0	0.02611	148.61	29162.2	17519.4	20.79	12.47	2202
1500.0	0.02437	150.04	31240.8	18766.5	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

4.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	38.13018	7.55	25.8	15.1	7.69	7.15	254
3.0	37.43817	9.07	29.9	19.1	9.03	7.83	250
3.5	36.52586	10.57	34.8	23.7	10.51	8.45	241
4.0	35.36612	12.08	40.5	29.0	12.26	8.94	227
4.5	33.84926	13.66	47.2	35.2	14.86	9.38	211
5.0	31.70564	15.45	55.7	42.9	19.83	9.85	190
5.5	28.10613	17.87	68.4	54.0	34.01	10.45	165
6.0	20.32857	22.54	95.4	75.5	72.46	11.38	138
6.5	13.70931	27.64	127.2	97.7	52.47	11.93	135
7.0	10.71640	30.99	149.8	112.0	39.55	12.11	141
7.5	9.02733	33.49	167.9	123.0	33.57	12.20	149
8.0	7.90535	35.54	183.8	132.5	30.30	12.26	156
8.5	7.08670	37.31	198.4	141.2	28.28	12.30	163
9.0	6.45326	38.89	212.2	149.4	26.91	12.34	170
9.5	5.94325	40.32	225.4	157.2	25.94	12.36	176
10.0	5.52072	41.63	238.2	164.7	25.20	12.39	182
11.0	4.85507	43.98	262.8	179.3	24.18	12.42	193
12.0	4.34922	46.05	286.6	193.4	23.51	12.45	203
13.0	3.94844	47.91	309.9	207.2	23.04	12.47	212
14.0	3.62125	49.61	332.7	220.8	22.68	12.48	221
15.0	3.34805	51.16	355.3	234.2	22.41	12.49	230
16.0	3.11585	52.60	377.6	247.5	22.20	12.50	238
17.0	2.91564	53.94	399.7	260.7	22.03	12.50	245
18.0	2.74097	55.20	421.7	273.8	21.89	12.51	253
19.0	2.58705	56.38	443.5	286.8	21.77	12.51	260
20.0	2.45026	57.49	465.2	299.8	21.67	12.51	267
22.0	2.21744	59.55	508.4	325.6	21.51	12.51	280
24.0	2.02634	61.42	551.3	351.3	21.39	12.51	293
26.0	1.86642	63.13	594.0	376.8	21.30	12.51	305
28.0	1.73048	64.70	636.5	402.3	21.23	12.51	316
30.0	1.61339	66.16	678.9	427.7	21.17	12.51	327
32.0	1.51142	67.53	721.2	453.0	21.12	12.51	338
34.0	1.42179	68.81	763.4	478.3	21.08	12.51	348
36.0	1.34234	70.01	805.5	503.6	21.05	12.51	358
38.0	1.27141	71.15	847.6	528.8	21.02	12.50	368
40.0	1.20769	72.23	889.6	554.0	21.00	12.50	377
45.0	1.07346	74.70	994.4	616.9	20.95	12.50	399
50.0	0.96630	76.90	1099.1	679.7	20.92	12.50	421
55.0	0.87871	78.89	1203.6	742.4	20.89	12.49	441
60.0	0.80576	80.71	1308.0	805.0	20.87	12.49	460
65.0	0.74404	82.38	1412.4	867.6	20.86	12.49	479
70.0	0.69114	83.93	1516.6	930.2	20.85	12.49	496
75.0	0.64528	85.36	1620.8	992.7	20.84	12.49	514
80.0	0.60515	86.71	1725.0	1055.2	20.83	12.49	530
85.0	0.56973	87.97	1829.1	1117.7	20.82	12.49	546
90.0	0.53823	89.16	1933.3	1180.2	20.82	12.48	562
95.0	0.51004	90.29	2037.3	1242.7	20.82	12.48	577
100.0	0.48466	91.36	2141.4	1305.1	20.81	12.48	592

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

4.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.44080	93.34	2349.5	1430.0	20.81	12.48	620
120.0	0.40423	95.15	2557.5	1554.9	20.80	12.48	648
130.0	0.37327	96.81	2765.5	1679.7	20.80	12.48	674
140.0	0.34671	98.36	2973.5	1804.5	20.80	12.48	699
150.0	0.32369	99.79	3181.5	1929.3	20.79	12.48	723
160.0	0.30353	101.13	3389.4	2054.1	20.79	12.48	747
170.0	0.28574	102.39	3597.3	2178.9	20.79	12.48	770
180.0	0.26992	103.58	3805.3	2303.6	20.79	12.48	792
190.0	0.25576	104.71	4013.2	2428.4	20.79	12.48	813
200.0	0.24301	105.77	4221.1	2553.2	20.79	12.48	834
210.0	0.23147	106.79	4428.9	2677.9	20.79	12.48	855
220.0	0.22098	107.75	4636.8	2802.7	20.79	12.48	875
230.0	0.21140	108.68	4844.7	2927.4	20.79	12.48	894
240.0	0.20261	109.56	5052.6	3052.2	20.79	12.48	914
250.0	0.19453	110.41	5260.5	3176.9	20.79	12.48	932
260.0	0.18707	111.23	5468.3	3301.7	20.79	12.48	951
270.0	0.18015	112.01	5676.2	3426.4	20.79	12.48	969
280.0	0.17373	112.77	5884.1	3551.1	20.79	12.48	986
290.0	0.16776	113.50	6091.9	3675.9	20.79	12.48	1004
300.0	0.16218	114.20	6299.8	3800.6	20.79	12.48	1021
310.0	0.15696	114.88	6507.7	3925.3	20.79	12.48	1038
320.0	0.15206	115.54	6715.5	4050.1	20.79	12.48	1054
330.0	0.14746	116.18	6923.4	4174.8	20.79	12.48	1071
340.0	0.14313	116.80	7131.2	4299.5	20.79	12.47	1087
350.0	0.13905	117.40	7339.1	4424.2	20.79	12.47	1102
360.0	0.13520	117.99	7546.9	4549.0	20.79	12.47	1118
370.0	0.13155	118.56	7754.8	4673.7	20.79	12.47	1133
380.0	0.12809	119.11	7962.6	4798.4	20.79	12.47	1148
390.0	0.12481	119.65	8170.5	4923.2	20.79	12.47	1163
400.0	0.12170	120.18	8378.4	5047.9	20.79	12.47	1178
420.0	0.11591	121.19	8794.1	5297.3	20.79	12.47	1207
440.0	0.11065	122.16	9209.8	5546.8	20.79	12.47	1236
460.0	0.10585	123.08	9625.5	5796.2	20.79	12.47	1263
480.0	0.10144	123.97	10041.2	6045.7	20.79	12.47	1290
500.0	0.09739	124.82	10456.9	6295.1	20.79	12.47	1317
550.0	0.08855	126.80	11496.1	6918.7	20.79	12.47	1381
600.0	0.08117	128.61	12535.4	7542.3	20.79	12.47	1442
650.0	0.07494	130.27	13574.6	8165.9	20.79	12.47	1501
700.0	0.06959	131.81	14613.9	8789.5	20.79	12.47	1558
750.0	0.06495	133.25	15653.1	9413.1	20.79	12.47	1612
800.0	0.06090	134.59	16692.4	10036.7	20.79	12.47	1665
850.0	0.05732	135.85	17731.6	10660.3	20.79	12.47	1716
900.0	0.05414	137.03	18770.9	11283.9	20.79	12.47	1766
950.0	0.05129	138.16	19810.1	11907.5	20.79	12.47	1814
1000.0	0.04872	139.22	20849.4	12531.0	20.79	12.47	1861
1100.0	0.04430	141.21	22927.9	13778.2	20.79	12.47	1952
1200.0	0.04061	143.01	25006.4	15025.4	20.79	12.47	2039
1300.0	0.03749	144.68	27084.9	16272.5	20.79	12.47	2122
1400.0	0.03481	146.22	29163.4	17519.7	20.79	12.47	2202
1500.0	0.03249	147.65	31242.0	18766.9	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

5.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	38.53574	7.48	28.2	15.1	7.50	6.99	264
3.0	37.88460	8.96	32.3	18.9	8.83	7.71	260
3.5	37.04119	10.42	37.0	23.4	10.22	8.36	251
4.0	35.99326	11.89	42.5	28.5	11.76	8.85	239
4.5	34.66961	13.38	48.9	34.3	13.85	9.27	225
5.0	32.91410	15.00	56.6	41.2	17.28	9.71	207
5.5	30.36592	16.93	66.7	50.1	24.27	10.19	186
6.0	26.07653	19.69	82.6	63.2	41.96	10.81	163
6.5	19.71318	23.79	108.3	82.6	54.77	11.50	148
7.0	15.09455	27.53	133.5	99.9	45.54	11.88	147
7.5	12.36361	30.40	154.3	113.3	38.23	12.06	152
8.0	10.60367	32.71	172.2	124.4	33.71	12.16	158
8.5	9.36588	34.66	188.3	134.2	30.84	12.23	164
9.0	8.43753	36.37	203.2	143.2	28.91	12.29	170
9.5	7.70846	37.89	217.3	151.6	27.54	12.33	177
10.0	7.11625	39.28	230.8	159.6	26.53	12.36	182
11.0	6.20346	41.74	256.6	174.9	25.15	12.41	193
12.0	5.52471	43.89	281.3	189.6	24.25	12.44	204
13.0	4.99507	45.80	305.2	203.8	23.63	12.47	213
14.0	4.56748	47.53	328.6	217.6	23.17	12.48	222
15.0	4.21342	49.12	351.6	231.3	22.83	12.49	231
16.0	3.91445	50.58	374.2	244.8	22.55	12.50	239
17.0	3.65800	51.95	396.7	258.2	22.34	12.51	246
18.0	3.43518	53.22	418.9	271.4	22.16	12.51	254
19.0	3.23950	54.41	441.0	284.6	22.01	12.52	261
20.0	3.06608	55.54	463.0	297.7	21.89	12.52	268
22.0	2.77186	57.61	506.5	323.7	21.69	12.52	281
24.0	2.53119	59.49	549.7	349.6	21.54	12.52	294
26.0	2.33028	61.21	592.7	375.3	21.43	12.52	306
28.0	2.15980	62.80	635.5	400.9	21.34	12.52	317
30.0	2.01317	64.27	678.1	426.4	21.26	12.52	328
32.0	1.88561	65.64	720.5	451.8	21.20	12.52	339
34.0	1.77358	66.92	762.9	477.2	21.15	12.51	349
36.0	1.67434	68.13	805.1	502.5	21.11	12.51	359
38.0	1.58579	69.27	847.3	527.8	21.08	12.51	369
40.0	1.50627	70.35	889.5	553.1	21.05	12.51	378
45.0	1.33885	72.82	994.5	616.1	20.99	12.51	401
50.0	1.20524	75.03	1099.4	679.0	20.95	12.50	422
55.0	1.09608	77.03	1204.0	741.8	20.92	12.50	442
60.0	1.00516	78.85	1308.6	804.5	20.89	12.50	461
65.0	0.92825	80.52	1413.0	867.2	20.88	12.49	480
70.0	0.86232	82.07	1517.3	929.8	20.86	12.49	497
75.0	0.80517	83.51	1621.6	992.4	20.85	12.49	515
80.0	0.75515	84.85	1725.8	1054.9	20.84	12.49	531
85.0	0.71100	86.11	1830.0	1117.5	20.83	12.49	547
90.0	0.67174	87.30	1934.2	1180.0	20.83	12.49	563
95.0	0.63660	88.43	2038.3	1242.5	20.82	12.49	578
100.0	0.60496	89.50	2142.4	1305.0	20.82	12.49	593

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

5.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.55028	91.48	2350.6	1429.9	20.81	12.48	621
120.0	0.50467	93.29	2558.7	1554.8	20.81	12.48	648
130.0	0.46605	94.96	2766.7	1679.6	20.80	12.48	675
140.0	0.43293	96.50	2974.7	1804.5	20.80	12.48	700
150.0	0.40421	97.93	3182.7	1929.3	20.80	12.48	724
160.0	0.37906	99.28	3390.7	2054.1	20.80	12.48	748
170.0	0.35686	100.54	3598.6	2178.9	20.79	12.48	770
180.0	0.33712	101.73	3806.5	2303.7	20.79	12.48	793
190.0	0.31945	102.85	4014.4	2428.4	20.79	12.48	814
200.0	0.30353	103.92	4222.3	2553.2	20.79	12.48	835
210.0	0.28913	104.93	4430.2	2678.0	20.79	12.48	855
220.0	0.27604	105.90	4638.1	2802.7	20.79	12.48	875
230.0	0.26408	106.82	4846.0	2927.5	20.79	12.48	895
240.0	0.25311	107.71	5053.9	3052.3	20.79	12.48	914
250.0	0.24302	108.56	5261.8	3177.0	20.79	12.48	933
260.0	0.23370	109.37	5469.7	3301.8	20.79	12.48	951
270.0	0.22507	110.16	5677.5	3426.5	20.79	12.48	969
280.0	0.21705	110.91	5885.4	3551.2	20.79	12.48	987
290.0	0.20959	111.64	6093.3	3676.0	20.79	12.48	1004
300.0	0.20262	112.35	6301.1	3800.7	20.79	12.48	1021
310.0	0.19610	113.03	6509.0	3925.5	20.79	12.48	1038
320.0	0.18999	113.69	6716.8	4050.2	20.79	12.48	1055
330.0	0.18425	114.33	6924.7	4174.9	20.79	12.48	1071
340.0	0.17884	114.95	7132.6	4299.7	20.79	12.48	1087
350.0	0.17374	115.55	7340.4	4424.4	20.79	12.48	1103
360.0	0.16893	116.13	7548.3	4549.1	20.79	12.48	1118
370.0	0.16437	116.70	7756.1	4673.9	20.79	12.48	1134
380.0	0.16006	117.26	7964.0	4798.6	20.79	12.48	1149
390.0	0.15596	117.80	8171.8	4923.3	20.79	12.48	1164
400.0	0.15207	118.32	8379.7	5048.1	20.79	12.48	1179
420.0	0.14484	119.34	8795.4	5297.5	20.79	12.48	1208
440.0	0.13827	120.31	9211.1	5547.0	20.79	12.48	1236
460.0	0.13227	121.23	9626.8	5796.4	20.79	12.47	1264
480.0	0.12677	122.11	10042.5	6045.9	20.79	12.47	1291
500.0	0.12170	122.96	10458.2	6295.3	20.79	12.47	1317
550.0	0.11066	124.94	11497.4	6918.9	20.79	12.47	1381
600.0	0.10145	126.75	12536.7	7542.5	20.79	12.47	1443
650.0	0.09365	128.42	13575.9	8166.1	20.79	12.47	1501
700.0	0.08697	129.96	14615.2	8789.7	20.79	12.47	1558
750.0	0.08118	131.39	15654.4	9413.4	20.79	12.47	1612
800.0	0.07611	132.73	16693.7	10036.9	20.79	12.47	1665
850.0	0.07164	133.99	17732.9	10660.5	20.79	12.47	1716
900.0	0.06766	135.18	18772.1	11284.1	20.79	12.47	1766
950.0	0.06410	136.30	19811.4	11907.7	20.79	12.47	1814
1000.0	0.06090	137.37	20850.6	12531.3	20.79	12.47	1861
1100.0	0.05537	139.35	22929.1	13778.5	20.79	12.47	1952
1200.0	0.05076	141.16	25007.6	15025.7	20.79	12.47	2039
1300.0	0.04685	142.82	27086.1	16272.9	20.79	12.47	2122
1400.0	0.04351	144.36	29164.6	17520.0	20.79	12.47	2202
1500.0	0.04061	145.80	31243.1	18767.2	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

6.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	38.91345	7.41	30.7	15.0	7.33	6.84	272
3.0	38.29598	8.86	34.6	18.8	8.66	7.62	270
3.5	37.50835	10.29	39.3	23.1	9.99	8.28	261
4.0	36.54740	11.71	44.6	28.0	11.37	8.77	250
4.5	35.36398	13.15	50.7	33.6	13.14	9.19	237
5.0	33.85653	14.66	57.9	40.0	15.77	9.60	221
5.5	31.82423	16.35	66.8	47.7	20.32	10.03	203
6.0	28.84192	18.46	79.0	57.9	29.43	10.53	183
6.5	24.30234	21.40	97.4	72.4	44.03	11.11	165
7.0	19.38282	24.84	120.6	89.2	45.97	11.60	158
7.5	15.85643	27.83	142.2	103.9	40.67	11.88	159
8.0	13.47349	30.30	161.4	116.3	36.20	12.05	162
8.5	11.78794	32.40	178.6	127.1	32.99	12.15	167
9.0	10.53412	34.21	194.5	136.8	30.70	12.23	173
9.5	9.56114	35.83	209.5	145.9	29.04	12.28	178
10.0	8.78027	37.28	223.6	154.4	27.79	12.33	184
11.0	7.59497	39.85	250.5	170.5	26.08	12.39	194
12.0	6.72831	42.06	276.0	185.6	24.97	12.43	205
13.0	6.06048	44.03	300.6	200.3	24.21	12.46	214
14.0	5.52643	45.80	324.5	214.5	23.65	12.48	223
15.0	5.08745	47.42	347.9	228.4	23.23	12.50	232
16.0	4.71890	48.91	371.0	242.1	22.90	12.51	240
17.0	4.40422	50.29	393.7	255.7	22.64	12.52	247
18.0	4.13182	51.58	416.3	269.1	22.42	12.52	255
19.0	3.89333	52.78	438.6	282.4	22.25	12.53	262
20.0	3.68251	53.92	460.8	295.7	22.10	12.53	269
22.0	3.32590	56.02	504.7	321.9	21.86	12.53	282
24.0	3.03510	57.91	548.2	347.9	21.68	12.53	295
26.0	2.79289	59.64	591.5	373.8	21.55	12.53	307
28.0	2.58772	61.23	634.4	399.5	21.44	12.53	318
30.0	2.41149	62.71	677.2	425.1	21.35	12.53	329
32.0	2.25833	64.08	719.9	450.7	21.28	12.53	340
34.0	2.12391	65.37	762.4	476.1	21.22	12.52	350
36.0	2.00492	66.58	804.8	501.5	21.18	12.52	360
38.0	1.89881	67.73	847.1	526.9	21.13	12.52	370
40.0	1.80355	68.81	889.3	552.2	21.10	12.52	379
45.0	1.60308	71.29	994.6	615.4	21.03	12.51	402
50.0	1.44317	73.50	1099.6	678.4	20.98	12.51	423
55.0	1.31254	75.50	1204.4	741.2	20.94	12.50	443
60.0	1.20377	77.32	1309.1	804.0	20.92	12.50	462
65.0	1.11175	79.00	1413.6	866.8	20.89	12.50	481
70.0	1.03288	80.54	1518.0	929.4	20.88	12.50	498
75.0	0.96450	81.98	1622.4	992.1	20.86	12.50	515
80.0	0.90466	83.33	1726.7	1054.6	20.85	12.49	532
85.0	0.85183	84.59	1830.9	1117.2	20.84	12.49	548
90.0	0.80485	85.79	1935.1	1179.7	20.84	12.49	564
95.0	0.76279	86.91	2039.3	1242.3	20.83	12.49	579
100.0	0.72492	87.98	2143.4	1304.8	20.83	12.49	594

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

6.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.65947	89.97	2351.6	1429.7	20.82	12.49	622
120.0	0.60487	91.78	2559.8	1554.7	20.81	12.49	649
130.0	0.55863	93.44	2767.9	1679.6	20.81	12.48	675
140.0	0.51897	94.98	2975.9	1804.4	20.80	12.48	701
150.0	0.48457	96.42	3183.9	1929.3	20.80	12.48	725
160.0	0.45445	97.76	3391.9	2054.1	20.80	12.48	748
170.0	0.42786	99.02	3599.9	2178.9	20.80	12.48	771
180.0	0.40421	100.21	3807.8	2303.7	20.79	12.48	793
190.0	0.38304	101.33	4015.7	2428.5	20.79	12.48	815
200.0	0.36397	102.40	4223.6	2553.3	20.79	12.48	836
210.0	0.34672	103.42	4431.5	2678.0	20.79	12.48	856
220.0	0.33102	104.38	4639.4	2802.8	20.79	12.48	876
230.0	0.31669	105.31	4847.3	2927.6	20.79	12.48	896
240.0	0.30355	106.19	5055.2	3052.3	20.79	12.48	915
250.0	0.29145	107.04	5263.1	3177.1	20.79	12.48	933
260.0	0.28028	107.86	5471.0	3301.9	20.79	12.48	952
270.0	0.26994	108.64	5678.9	3426.6	20.79	12.48	970
280.0	0.26033	109.40	5886.7	3551.4	20.79	12.48	987
290.0	0.25138	110.13	6094.6	3676.1	20.79	12.48	1005
300.0	0.24303	110.83	6302.5	3800.9	20.79	12.48	1022
310.0	0.23522	111.51	6510.3	3925.6	20.79	12.48	1039
320.0	0.22789	112.17	6718.2	4050.3	20.79	12.48	1055
330.0	0.22100	112.81	6926.0	4175.1	20.79	12.48	1071
340.0	0.21452	113.43	7133.9	4299.8	20.79	12.48	1087
350.0	0.20841	114.03	7341.8	4424.6	20.79	12.48	1103
360.0	0.20263	114.62	7549.6	4549.3	20.79	12.48	1119
370.0	0.19717	115.19	7757.5	4674.0	20.79	12.48	1134
380.0	0.19200	115.74	7965.3	4798.8	20.79	12.48	1149
390.0	0.18708	116.28	8173.2	4923.5	20.79	12.48	1164
400.0	0.18242	116.81	8381.0	5048.2	20.79	12.48	1179
420.0	0.17375	117.82	8796.7	5297.7	20.79	12.48	1208
440.0	0.16587	118.79	9212.4	5547.1	20.79	12.48	1236
460.0	0.15867	119.71	9628.1	5796.6	20.79	12.48	1264
480.0	0.15208	120.60	10043.8	6046.1	20.79	12.48	1291
500.0	0.14601	121.45	10459.5	6295.5	20.79	12.48	1317
550.0	0.13275	123.43	11498.8	6919.1	20.78	12.48	1382
600.0	0.12171	125.24	12538.0	7542.8	20.78	12.47	1443
650.0	0.11236	126.90	13577.2	8166.4	20.78	12.47	1502
700.0	0.10435	128.44	14616.5	8790.0	20.78	12.47	1558
750.0	0.09740	129.87	15655.7	9413.6	20.78	12.47	1613
800.0	0.09132	131.22	16694.9	10037.2	20.78	12.47	1665
850.0	0.08595	132.48	17734.2	10660.8	20.78	12.47	1717
900.0	0.08118	133.66	18773.4	11284.4	20.78	12.47	1766
950.0	0.07691	134.79	19812.6	11908.0	20.79	12.47	1815
1000.0	0.07307	135.85	20851.9	12531.6	20.79	12.47	1862
1100.0	0.06643	137.84	22930.4	13778.8	20.79	12.47	1952
1200.0	0.06090	139.64	25008.8	15026.0	20.79	12.47	2039
1300.0	0.05622	141.31	27087.3	16273.2	20.79	12.47	2122
1400.0	0.05221	142.85	29165.8	17520.4	20.79	12.47	2202
1500.0	0.04873	144.28	31244.3	18767.6	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

7.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	39.26768	7.34	33.1	15.0	7.17	6.70	281
3.0	38.67838	8.76	37.0	18.7	8.51	7.53	278
3.5	37.93693	10.17	41.6	22.9	9.79	8.21	271
4.0	37.04595	11.56	46.8	27.6	11.07	8.70	260
4.5	35.96991	12.95	52.7	33.0	12.61	9.11	248
5.0	34.63752	14.38	59.5	39.0	14.76	9.51	234
5.5	32.92122	15.93	67.6	46.1	18.12	9.91	218
6.0	30.58602	17.74	78.0	54.8	23.94	10.35	200
6.5	27.25718	20.02	92.3	66.3	33.84	10.84	183
7.0	23.00907	22.88	111.6	80.8	41.94	11.33	171
7.5	19.16681	25.77	132.5	95.5	40.81	11.69	168
8.0	16.32246	28.29	152.1	108.6	37.35	11.92	169
8.5	14.24327	30.46	170.0	120.2	34.36	12.06	172
9.0	12.67782	32.35	186.6	130.6	32.04	12.16	176
9.5	11.46030	34.04	202.1	140.2	30.25	12.24	181
10.0	10.48557	35.55	216.9	149.2	28.87	12.29	186
11.0	9.01597	38.20	244.7	166.0	26.92	12.37	196
12.0	7.95222	40.49	270.9	181.7	25.64	12.42	206
13.0	7.13981	42.50	296.1	196.8	24.75	12.46	215
14.0	6.49488	44.31	320.5	211.3	24.10	12.48	224
15.0	5.96791	45.96	344.4	225.5	23.61	12.50	233
16.0	5.52760	47.47	367.8	239.5	23.23	12.51	241
17.0	5.15312	48.87	390.9	253.2	22.93	12.52	249
18.0	4.83001	50.17	413.7	266.8	22.68	12.53	256
19.0	4.54788	51.39	436.2	280.3	22.47	12.53	263
20.0	4.29904	52.54	458.6	293.6	22.30	12.54	270
22.0	3.87925	54.65	502.9	320.1	22.03	12.54	284
24.0	3.53788	56.56	546.8	346.3	21.82	12.54	296
26.0	3.25415	58.30	590.3	372.3	21.67	12.54	308
28.0	3.01418	59.90	633.5	398.1	21.54	12.54	320
30.0	2.80830	61.38	676.4	423.9	21.44	12.54	331
32.0	2.62955	62.77	719.2	449.5	21.36	12.53	341
34.0	2.47278	64.06	761.9	475.1	21.29	12.53	351
36.0	2.33409	65.27	804.4	500.5	21.24	12.53	361
38.0	2.21046	66.42	846.8	526.0	21.19	12.53	371
40.0	2.09952	67.51	889.2	551.3	21.15	12.52	380
45.0	1.86615	69.99	994.7	614.6	21.07	12.52	403
50.0	1.68008	72.21	1099.9	677.7	21.01	12.51	424
55.0	1.52812	74.21	1204.8	740.7	20.97	12.51	444
60.0	1.40159	76.03	1309.6	803.5	20.94	12.51	463
65.0	1.29456	77.71	1414.2	866.3	20.91	12.50	482
70.0	1.20282	79.26	1518.7	929.0	20.89	12.50	499
75.0	1.12328	80.70	1623.2	991.7	20.88	12.50	516
80.0	1.05366	82.05	1727.5	1054.3	20.86	12.50	533
85.0	0.99220	83.31	1831.8	1116.9	20.85	12.50	549
90.0	0.93754	84.50	1936.1	1179.5	20.85	12.49	565
95.0	0.88861	85.63	2040.3	1242.1	20.84	12.49	580
100.0	0.84455	86.70	2144.4	1304.6	20.83	12.49	594

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

7.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.76837	88.68	2352.7	1429.6	20.82	12.49	623
120.0	0.70483	90.49	2560.9	1554.6	20.82	12.49	650
130.0	0.65100	92.16	2769.0	1679.5	20.81	12.49	676
140.0	0.60483	93.70	2977.1	1804.4	20.81	12.49	701
150.0	0.56477	95.14	3185.1	1929.2	20.80	12.48	725
160.0	0.52970	96.48	3393.1	2054.1	20.80	12.48	749
170.0	0.49873	97.74	3601.1	2178.9	20.80	12.48	772
180.0	0.47119	98.93	3809.1	2303.7	20.80	12.48	794
190.0	0.44653	100.05	4017.0	2428.5	20.79	12.48	815
200.0	0.42432	101.12	4224.9	2553.3	20.79	12.48	836
210.0	0.40422	102.13	4432.8	2678.1	20.79	12.48	857
220.0	0.38594	103.10	4640.8	2802.9	20.79	12.48	877
230.0	0.36924	104.03	4848.6	2927.7	20.79	12.48	896
240.0	0.35392	104.91	5056.5	3052.4	20.79	12.48	915
250.0	0.33983	105.76	5264.4	3177.2	20.79	12.48	934
260.0	0.32681	106.57	5472.3	3302.0	20.79	12.48	952
270.0	0.31476	107.36	5680.2	3426.7	20.79	12.48	970
280.0	0.30356	108.11	5888.1	3551.5	20.79	12.48	988
290.0	0.29313	108.84	6095.9	3676.2	20.79	12.48	1005
300.0	0.28340	109.55	6303.8	3801.0	20.79	12.48	1022
310.0	0.27429	110.23	6511.7	3925.7	20.79	12.48	1039
320.0	0.26575	110.89	6719.5	4050.5	20.79	12.48	1056
330.0	0.25772	111.53	6927.4	4175.2	20.79	12.48	1072
340.0	0.25017	112.15	7135.2	4300.0	20.79	12.48	1088
350.0	0.24304	112.75	7343.1	4424.7	20.79	12.48	1104
360.0	0.23631	113.34	7551.0	4549.4	20.79	12.48	1119
370.0	0.22995	113.91	7758.8	4674.2	20.79	12.48	1134
380.0	0.22391	114.46	7966.7	4798.9	20.79	12.48	1150
390.0	0.21819	115.00	8174.5	4923.7	20.79	12.48	1165
400.0	0.21275	115.53	8382.4	5048.4	20.79	12.48	1179
420.0	0.20264	116.54	8798.1	5297.9	20.79	12.48	1208
440.0	0.19346	117.51	9213.8	5547.3	20.79	12.48	1237
460.0	0.18507	118.43	9629.5	5796.8	20.79	12.48	1264
480.0	0.17737	119.32	10045.2	6046.3	20.78	12.48	1291
500.0	0.17029	120.17	10460.8	6295.7	20.78	12.48	1318
550.0	0.15484	122.15	11500.1	6919.4	20.78	12.48	1382
600.0	0.14196	123.96	12539.3	7543.0	20.78	12.48	1443
650.0	0.13106	125.62	13578.5	8166.6	20.78	12.48	1502
700.0	0.12171	127.16	14617.8	8790.2	20.78	12.48	1558
750.0	0.11361	128.59	15657.0	9413.9	20.78	12.47	1613
800.0	0.10652	129.93	16696.2	10037.5	20.78	12.47	1666
850.0	0.10026	131.20	17735.4	10661.1	20.78	12.47	1717
900.0	0.09470	132.38	18774.7	11284.7	20.78	12.47	1766
950.0	0.08972	133.51	19813.9	11908.3	20.78	12.47	1815
1000.0	0.08524	134.57	20853.1	12531.9	20.78	12.47	1862
1100.0	0.07750	136.55	22931.6	13779.1	20.78	12.47	1952
1200.0	0.07105	138.36	25010.1	15026.3	20.78	12.47	2039
1300.0	0.06558	140.03	27088.5	16273.5	20.79	12.47	2122
1400.0	0.06090	141.57	29167.0	17520.7	20.79	12.47	2202
1500.0	0.05685	143.00	31245.5	18767.9	20.79	12.47	2279

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

8.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	39.60180	7.28	35.5	15.0	7.03	6.57	289
3.0	39.03636	8.68	39.3	18.6	8.38	7.44	287
3.5	38.33383	10.06	43.8	22.7	9.63	8.15	279
4.0	37.50056	11.43	49.0	27.3	10.82	8.65	270
4.5	36.50989	12.78	54.7	32.5	12.19	9.05	258
5.0	35.30900	14.15	61.2	38.3	14.02	9.43	245
5.5	33.80965	15.60	68.9	44.9	16.69	9.82	230
6.0	31.86422	17.22	78.2	52.7	20.89	10.22	214
6.5	29.24318	19.14	90.2	62.5	27.68	10.66	198
7.0	25.80124	21.50	106.1	74.7	35.96	11.11	185
7.5	22.10784	24.13	125.2	88.5	39.10	11.50	178
8.0	19.00984	26.61	144.4	101.8	37.43	11.78	177
8.5	16.63055	28.81	162.5	113.8	34.99	11.96	178
9.0	14.79893	30.75	179.5	124.7	32.85	12.09	181
9.5	13.35840	32.48	195.5	134.8	31.10	12.18	185
10.0	12.19924	34.03	210.6	144.2	29.70	12.25	190
11.0	10.44950	36.76	239.2	161.7	27.63	12.35	199
12.0	9.18683	39.10	266.1	177.9	26.24	12.41	208
13.0	8.22714	41.16	291.8	193.3	25.25	12.45	217
14.0	7.46899	43.00	316.7	208.2	24.53	12.48	226
15.0	6.85216	44.68	341.0	222.7	23.98	12.50	234
16.0	6.33869	46.21	364.7	236.8	23.55	12.52	242
17.0	5.90336	47.63	388.1	250.8	23.20	12.53	250
18.0	5.52876	48.94	411.1	264.5	22.92	12.54	257
19.0	5.20240	50.18	433.9	278.1	22.69	12.54	265
20.0	4.91510	51.34	456.5	291.6	22.50	12.55	272
22.0	4.43157	53.46	501.2	318.3	22.19	12.55	285
24.0	4.03932	55.39	545.3	344.7	21.96	12.55	297
26.0	3.71392	57.14	589.1	370.8	21.78	12.55	309
28.0	3.43908	58.74	632.5	396.8	21.64	12.55	321
30.0	3.20356	60.23	675.7	422.6	21.53	12.54	332
32.0	2.99924	61.62	718.6	448.3	21.44	12.54	342
34.0	2.82017	62.92	761.4	474.0	21.36	12.54	353
36.0	2.66184	64.14	804.1	499.5	21.30	12.54	363
38.0	2.52075	65.29	846.6	525.0	21.24	12.53	372
40.0	2.39420	66.37	889.1	550.5	21.20	12.53	382
45.0	2.12808	68.87	994.8	613.9	21.11	12.52	404
50.0	1.91599	71.09	1100.2	677.1	21.04	12.52	425
55.0	1.74281	73.09	1205.2	740.1	20.99	12.52	445
60.0	1.59864	74.91	1310.1	803.1	20.96	12.51	464
65.0	1.47668	76.59	1414.8	865.9	20.93	12.51	483
70.0	1.37214	78.14	1519.4	928.7	20.91	12.51	500
75.0	1.28151	79.58	1623.9	991.4	20.89	12.50	517
80.0	1.20218	80.93	1728.3	1054.1	20.88	12.50	534
85.0	1.13214	82.20	1832.7	1116.7	20.86	12.50	550
90.0	1.06984	83.39	1937.0	1179.3	20.85	12.50	565
95.0	1.01407	84.52	2041.2	1241.9	20.85	12.50	581
100.0	0.96384	85.58	2145.5	1304.4	20.84	12.49	595

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

8.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.87700	87.57	2353.8	1429.5	20.83	12.49	624
120.0	0.80455	89.38	2562.0	1554.5	20.82	12.49	651
130.0	0.74317	91.05	2770.2	1679.4	20.81	12.49	677
140.0	0.69051	92.59	2978.3	1804.3	20.81	12.49	702
150.0	0.64482	94.03	3186.3	1929.2	20.80	12.49	726
160.0	0.60481	95.37	3394.4	2054.1	20.80	12.49	750
170.0	0.56948	96.63	3602.3	2178.9	20.80	12.48	772
180.0	0.53806	97.82	3810.3	2303.7	20.80	12.48	794
190.0	0.50992	98.94	4018.3	2428.6	20.79	12.48	816
200.0	0.48458	100.01	4226.2	2553.4	20.79	12.48	837
210.0	0.46164	101.02	4434.1	2678.2	20.79	12.48	857
220.0	0.44077	101.99	4642.1	2803.0	20.79	12.48	877
230.0	0.42171	102.92	4850.0	2927.7	20.79	12.48	897
240.0	0.40423	103.80	5057.9	3052.5	20.79	12.48	916
250.0	0.38815	104.65	5265.7	3177.3	20.79	12.48	934
260.0	0.37329	105.46	5473.6	3302.1	20.79	12.48	953
270.0	0.35953	106.25	5681.5	3426.8	20.79	12.48	971
280.0	0.34675	107.00	5889.4	3551.6	20.79	12.48	988
290.0	0.33484	107.73	6097.3	3676.4	20.79	12.48	1006
300.0	0.32373	108.44	6305.1	3801.1	20.79	12.48	1023
310.0	0.31333	109.12	6513.0	3925.9	20.79	12.48	1039
320.0	0.30358	109.78	6720.9	4050.6	20.79	12.48	1056
330.0	0.29441	110.42	6928.7	4175.4	20.79	12.48	1072
340.0	0.28579	111.04	7136.6	4300.1	20.79	12.48	1088
350.0	0.27765	111.64	7344.4	4424.9	20.79	12.48	1104
360.0	0.26997	112.23	7552.3	4549.6	20.79	12.48	1120
370.0	0.26269	112.80	7760.1	4674.3	20.79	12.48	1135
380.0	0.25581	113.35	7968.0	4799.1	20.79	12.48	1150
390.0	0.24927	113.89	8175.8	4923.8	20.79	12.48	1165
400.0	0.24306	114.42	8383.7	5048.6	20.79	12.48	1180
420.0	0.23152	115.43	8799.4	5298.0	20.79	12.48	1209
440.0	0.22102	116.40	9215.1	5547.5	20.79	12.48	1237
460.0	0.21144	117.32	9630.8	5797.0	20.78	12.48	1265
480.0	0.20265	118.21	10046.5	6046.5	20.78	12.48	1292
500.0	0.19457	119.06	10462.2	6295.9	20.78	12.48	1318
550.0	0.17692	121.04	11501.4	6919.6	20.78	12.48	1382
600.0	0.16221	122.85	12540.6	7543.2	20.78	12.48	1443
650.0	0.14976	124.51	13579.8	8166.8	20.78	12.48	1502
700.0	0.13908	126.05	14619.0	8790.5	20.78	12.48	1559
750.0	0.12982	127.48	15658.3	9414.1	20.78	12.48	1613
800.0	0.12172	128.83	16697.5	10037.7	20.78	12.48	1666
850.0	0.11457	130.09	17736.7	10661.4	20.78	12.48	1717
900.0	0.10821	131.27	18775.9	11285.0	20.78	12.48	1767
950.0	0.10253	132.40	19815.1	11908.6	20.78	12.47	1815
1000.0	0.09741	133.46	20854.4	12532.2	20.78	12.47	1862
1100.0	0.08856	135.44	22932.8	13779.4	20.78	12.47	1953
1200.0	0.08119	137.25	25011.3	15026.6	20.78	12.47	2039
1300.0	0.07495	138.92	27089.7	16273.9	20.78	12.47	2122
1400.0	0.06960	140.46	29168.2	17521.1	20.78	12.47	2202
1500.0	0.06496	141.89	31246.7	18768.3	20.78	12.47	2280

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

9.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	39.91849	7.21	37.9	15.0	6.90	6.45	296
3.0	39.37345	8.59	41.7	18.5	8.27	7.37	294
3.5	38.70418	9.96	46.1	22.6	9.48	8.09	288
4.0	37.91943	11.30	51.1	27.1	10.61	8.60	278
4.5	36.99860	12.62	56.7	32.1	11.86	9.00	267
5.0	35.90080	13.95	63.1	37.7	13.45	9.37	255
5.5	34.56126	15.33	70.3	43.9	15.67	9.74	242
6.0	32.87901	16.82	78.9	51.2	18.95	10.12	227
6.5	30.70384	18.52	89.5	59.8	23.94	10.52	212
7.0	27.88837	20.54	103.2	70.5	30.71	10.94	198
7.5	24.59584	22.86	120.0	82.9	35.98	11.33	189
8.0	21.46402	25.22	138.3	95.8	36.63	11.64	185
8.5	18.88837	27.40	156.3	108.0	35.07	11.86	185
9.0	16.84606	29.36	173.4	119.2	33.24	12.02	187
9.5	15.21493	31.11	189.6	129.6	31.62	12.13	190
10.0	13.89046	32.69	205.0	139.4	30.27	12.21	194
11.0	11.87795	35.48	234.2	157.4	28.20	12.33	202
12.0	10.42171	37.86	261.6	174.1	26.74	12.40	211
13.0	9.31599	39.96	287.8	189.9	25.69	12.45	219
14.0	8.44448	41.83	313.1	205.1	24.91	12.48	228
15.0	7.73730	43.53	337.7	219.8	24.31	12.51	236
16.0	7.15011	45.08	361.8	234.2	23.84	12.52	244
17.0	6.65345	46.52	385.4	248.3	23.46	12.54	251
18.0	6.22694	47.85	408.7	262.2	23.15	12.54	259
19.0	5.85604	49.09	431.7	276.0	22.90	12.55	266
20.0	5.53005	50.26	454.5	289.6	22.68	12.55	273
22.0	4.98245	52.41	499.5	316.5	22.34	12.56	286
24.0	4.53918	54.34	543.9	343.0	22.09	12.56	299
26.0	4.17203	56.10	587.9	369.3	21.89	12.56	311
28.0	3.86234	57.72	631.5	395.4	21.74	12.56	322
30.0	3.59720	59.21	674.9	421.4	21.61	12.55	333
32.0	3.36737	60.61	718.0	447.2	21.51	12.55	344
34.0	3.16606	61.91	761.0	472.9	21.43	12.55	354
36.0	2.98814	63.13	803.7	498.6	21.36	12.54	364
38.0	2.82968	64.28	846.4	524.1	21.30	12.54	373
40.0	2.68757	65.37	888.9	549.6	21.25	12.54	383
45.0	2.38888	67.87	994.9	613.1	21.15	12.53	405
50.0	2.15091	70.09	1100.4	676.4	21.07	12.53	426
55.0	1.95663	72.10	1205.7	739.6	21.02	12.52	446
60.0	1.79491	73.93	1310.6	802.6	20.98	12.52	465
65.0	1.65812	75.60	1415.5	865.5	20.95	12.51	484
70.0	1.54086	77.16	1520.1	928.3	20.92	12.51	501
75.0	1.43920	78.60	1624.7	991.1	20.90	12.51	518
80.0	1.35021	79.95	1729.2	1053.8	20.89	12.50	535
85.0	1.27163	81.21	1833.6	1116.4	20.87	12.50	551
90.0	1.20174	82.41	1937.9	1179.1	20.86	12.50	566
95.0	1.13916	83.53	2042.2	1241.7	20.85	12.50	581
100.0	1.08280	84.60	2146.5	1304.2	20.85	12.50	596

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

9.0 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	0.98535	86.59	2354.8	1429.3	20.83	12.49	625
120.0	0.90403	88.40	2563.1	1554.4	20.82	12.49	652
130.0	0.83513	90.07	2771.3	1679.3	20.82	12.49	678
140.0	0.77601	91.61	2979.4	1804.3	20.81	12.49	703
150.0	0.72472	93.05	3187.5	1929.2	20.81	12.49	727
160.0	0.67979	94.39	3395.6	2054.1	20.80	12.49	750
170.0	0.64011	95.65	3603.6	2178.9	20.80	12.49	773
180.0	0.60482	96.84	3811.6	2303.8	20.80	12.49	795
190.0	0.57321	97.96	4019.5	2428.6	20.80	12.48	816
200.0	0.54475	99.03	4227.5	2553.4	20.79	12.48	837
210.0	0.51898	100.04	4435.4	2678.2	20.79	12.48	858
220.0	0.49554	101.01	4643.4	2803.0	20.79	12.48	878
230.0	0.47413	101.94	4851.3	2927.8	20.79	12.48	897
240.0	0.45449	102.82	5059.2	3052.6	20.79	12.48	916
250.0	0.43641	103.67	5267.1	3177.4	20.79	12.48	935
260.0	0.41972	104.49	5475.0	3302.2	20.79	12.48	953
270.0	0.40425	105.27	5682.8	3426.9	20.79	12.48	971
280.0	0.38989	106.03	5890.7	3551.7	20.79	12.48	989
290.0	0.37651	106.76	6098.6	3676.5	20.79	12.48	1006
300.0	0.36402	107.46	6306.5	3801.2	20.79	12.48	1023
310.0	0.35233	108.14	6514.3	3926.0	20.79	12.48	1040
320.0	0.34137	108.80	6722.2	4050.8	20.79	12.48	1056
330.0	0.33107	109.44	6930.0	4175.5	20.79	12.48	1073
340.0	0.32138	110.06	7137.9	4300.3	20.79	12.48	1089
350.0	0.31223	110.66	7345.8	4425.0	20.79	12.48	1104
360.0	0.30359	111.25	7553.6	4549.8	20.79	12.48	1120
370.0	0.29542	111.82	7761.5	4674.5	20.79	12.48	1135
380.0	0.28767	112.37	7969.3	4799.3	20.79	12.48	1150
390.0	0.28033	112.91	8177.2	4924.0	20.79	12.48	1165
400.0	0.27334	113.44	8385.0	5048.7	20.79	12.48	1180
420.0	0.26037	114.45	8800.7	5298.2	20.79	12.48	1209
440.0	0.24857	115.42	9216.4	5547.7	20.78	12.48	1237
460.0	0.23780	116.34	9632.1	5797.2	20.78	12.48	1265
480.0	0.22792	117.23	10047.8	6046.6	20.78	12.48	1292
500.0	0.21883	118.08	10463.5	6296.1	20.78	12.48	1318
550.0	0.19899	120.06	11502.7	6919.8	20.78	12.48	1382
600.0	0.18245	121.87	12541.9	7543.4	20.78	12.48	1444
650.0	0.16844	123.53	13581.1	8167.1	20.78	12.48	1502
700.0	0.15643	125.07	14620.3	8790.7	20.78	12.48	1559
750.0	0.14602	126.50	15659.5	9414.4	20.78	12.48	1613
800.0	0.13691	127.85	16698.8	10038.0	20.78	12.48	1666
850.0	0.12887	129.11	17738.0	10661.6	20.78	12.48	1717
900.0	0.12172	130.29	18777.2	11285.2	20.78	12.48	1767
950.0	0.11533	131.42	19816.4	11908.9	20.78	12.48	1815
1000.0	0.10957	132.48	20855.6	12532.5	20.78	12.48	1862
1100.0	0.09962	134.46	22934.0	13779.7	20.78	12.48	1953
1200.0	0.09133	136.27	25012.5	15027.0	20.78	12.47	2039
1300.0	0.08431	137.94	27090.9	16274.2	20.78	12.47	2123
1400.0	0.07829	139.48	29169.4	17521.4	20.78	12.47	2202
1500.0	0.07308	140.91	31247.8	18768.6	20.78	12.47	2280

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

10 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	40.21990	7.16	40.3	15.1	6.78	6.34	303
3.0	39.69243	8.51	44.0	18.5	8.16	7.30	302
3.5	39.05192	9.87	48.4	22.4	9.36	8.04	295
4.0	38.30862	11.19	53.3	26.9	10.43	8.55	286
4.5	37.44616	12.48	58.8	31.8	11.58	8.95	276
5.0	36.43178	13.77	65.0	37.1	13.00	9.31	265
5.5	35.21574	15.09	71.9	43.1	14.91	9.67	252
6.0	33.72465	16.50	80.0	50.0	17.59	10.04	238
6.5	31.85393	18.05	89.7	57.9	21.49	10.42	224
7.0	29.48651	19.83	101.7	67.4	26.85	10.80	211
7.5	26.63142	21.88	116.6	78.6	32.39	11.18	200
8.0	23.64664	24.08	133.6	90.8	35.02	11.51	194
8.5	20.98591	26.20	151.1	102.8	34.67	11.76	193
9.0	18.79050	28.14	168.1	114.2	33.31	11.94	193
9.5	17.00334	29.90	184.4	124.8	31.89	12.07	196
10.0	15.53610	31.51	200.0	134.8	30.63	12.17	198
11.0	13.28578	34.33	229.6	153.3	28.61	12.30	206
12.0	11.64687	36.75	257.5	170.5	27.15	12.39	213
13.0	10.39982	38.88	284.0	186.6	26.07	12.44	222
14.0	9.41699	40.78	309.7	202.1	25.25	12.48	230
15.0	8.62029	42.50	334.6	217.0	24.61	12.51	238
16.0	7.95971	44.07	358.9	231.6	24.11	12.53	246
17.0	7.40181	45.52	382.8	245.9	23.70	12.54	253
18.0	6.92341	46.86	406.4	260.0	23.37	12.55	260
19.0	6.50793	48.12	429.6	273.9	23.09	12.56	267
20.0	6.14320	49.30	452.6	287.6	22.86	12.56	274
22.0	5.53149	51.46	497.9	314.7	22.49	12.57	288
24.0	5.03719	53.40	542.6	341.4	22.22	12.57	300
26.0	4.62834	55.17	586.8	367.9	22.00	12.57	312
28.0	4.28383	56.80	630.6	394.1	21.83	12.56	323
30.0	3.98914	58.30	674.2	420.2	21.70	12.56	334
32.0	3.73388	59.69	717.4	446.1	21.59	12.56	345
34.0	3.51041	61.00	760.5	471.9	21.49	12.55	355
36.0	3.31300	62.23	803.4	497.6	21.41	12.55	365
38.0	3.13722	63.38	846.2	523.2	21.35	12.55	375
40.0	2.97964	64.48	888.8	548.8	21.29	12.54	384
45.0	2.64854	66.98	995.0	612.4	21.18	12.54	406
50.0	2.38483	69.21	1100.7	675.8	21.10	12.53	427
55.0	2.16959	71.21	1206.1	739.0	21.04	12.53	447
60.0	1.99043	73.04	1311.2	802.1	21.00	12.52	466
65.0	1.83889	74.72	1416.1	865.0	20.97	12.52	485
70.0	1.70898	76.27	1520.8	927.9	20.94	12.51	502
75.0	1.59636	77.72	1625.5	990.7	20.92	12.51	519
80.0	1.49775	79.07	1730.0	1053.5	20.90	12.51	536
85.0	1.41069	80.33	1834.5	1116.2	20.88	12.51	552
90.0	1.33324	81.53	1938.8	1178.8	20.87	12.50	567
95.0	1.26389	82.66	2043.2	1241.5	20.86	12.50	582
100.0	1.20143	83.73	2147.4	1304.1	20.85	12.50	597

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

10 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	1.09342	85.71	2355.9	1429.2	20.84	12.50	625
120.0	1.00327	87.53	2564.2	1554.3	20.83	12.49	652
130.0	0.92689	89.19	2772.5	1679.3	20.82	12.49	678
140.0	0.86134	90.73	2980.6	1804.2	20.81	12.49	703
150.0	0.80446	92.17	3188.7	1929.2	20.81	12.49	728
160.0	0.75463	93.51	3396.8	2054.1	20.81	12.49	751
170.0	0.71062	94.77	3604.8	2178.9	20.80	12.49	774
180.0	0.67147	95.96	3812.8	2303.8	20.80	12.49	796
190.0	0.63641	97.09	4020.8	2428.6	20.80	12.49	817
200.0	0.60483	98.15	4228.8	2553.5	20.80	12.49	838
210.0	0.57624	99.17	4436.7	2678.3	20.79	12.48	858
220.0	0.55023	100.14	4644.7	2803.1	20.79	12.48	878
230.0	0.52647	101.06	4852.6	2927.9	20.79	12.48	898
240.0	0.50468	101.95	5060.5	3052.7	20.79	12.48	917
250.0	0.48462	102.79	5268.4	3177.5	20.79	12.48	935
260.0	0.46609	103.61	5476.3	3302.3	20.79	12.48	954
270.0	0.44893	104.39	5684.2	3427.1	20.79	12.48	972
280.0	0.43299	105.15	5892.0	3551.8	20.79	12.48	989
290.0	0.41814	105.88	6099.9	3676.6	20.79	12.48	1007
300.0	0.40427	106.58	6307.8	3801.4	20.79	12.48	1024
310.0	0.39130	107.27	6515.7	3926.1	20.79	12.48	1040
320.0	0.37913	107.93	6723.5	4050.9	20.79	12.48	1057
330.0	0.36770	108.57	6931.4	4175.7	20.79	12.48	1073
340.0	0.35693	109.19	7139.2	4300.4	20.79	12.48	1089
350.0	0.34678	109.79	7347.1	4425.2	20.79	12.48	1105
360.0	0.33719	110.37	7555.0	4549.9	20.79	12.48	1120
370.0	0.32812	110.94	7762.8	4674.7	20.79	12.48	1136
380.0	0.31952	111.50	7970.7	4799.4	20.79	12.48	1151
390.0	0.31136	112.04	8178.5	4924.2	20.79	12.48	1166
400.0	0.30361	112.56	8386.4	5048.9	20.79	12.48	1180
420.0	0.28921	113.58	8802.1	5298.4	20.78	12.48	1209
440.0	0.27611	114.54	9217.8	5547.9	20.78	12.48	1238
460.0	0.26414	115.47	9633.4	5797.4	20.78	12.48	1265
480.0	0.25317	116.35	10049.1	6046.8	20.78	12.48	1292
500.0	0.24308	117.20	10464.8	6296.3	20.78	12.48	1319
550.0	0.22105	119.18	11504.0	6920.0	20.78	12.48	1383
600.0	0.20267	120.99	12543.2	7543.7	20.78	12.48	1444
650.0	0.18712	122.65	13582.4	8167.3	20.78	12.48	1503
700.0	0.17378	124.20	14621.6	8791.0	20.78	12.48	1559
750.0	0.16222	125.63	15660.8	9414.6	20.78	12.48	1614
800.0	0.15210	126.97	16700.0	10038.3	20.78	12.48	1666
850.0	0.14317	128.23	17739.2	10661.9	20.78	12.48	1717
900.0	0.13523	129.42	18778.4	11285.5	20.78	12.48	1767
950.0	0.12813	130.54	19817.6	11909.2	20.78	12.48	1815
1000.0	0.12173	131.61	20856.9	12532.8	20.78	12.48	1862
1100.0	0.11068	133.59	22935.3	13780.0	20.78	12.48	1953
1200.0	0.10147	135.40	25013.7	15027.3	20.78	12.48	2040
1300.0	0.09367	137.06	27092.1	16274.5	20.78	12.48	2123
1400.0	0.08699	138.60	29170.6	17521.8	20.78	12.48	2203
1500.0	0.08119	140.04	31249.0	18769.0	20.78	12.47	2280

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

15 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.0	41.88545	5.54	49.0	12.7	6.82	6.72	326
2.5	41.55054	6.89	52.0	15.4	6.31	5.88	335
3.0	41.08200	8.18	55.5	18.5	7.79	7.04	334
3.5	40.54116	9.47	59.7	22.2	8.92	7.86	329
4.0	39.93934	10.72	64.4	26.3	9.81	8.38	322
4.5	39.26880	11.92	69.5	30.8	10.67	8.77	313
5.0	38.51393	13.09	75.1	35.6	11.62	9.10	304
5.5	37.65425	14.25	81.2	40.8	12.78	9.42	294
6.0	36.66451	15.43	87.9	46.5	14.22	9.74	284
6.5	35.51395	16.63	95.5	52.7	16.04	10.07	273
7.0	34.16683	17.90	104.0	59.5	18.35	10.39	262
7.5	32.58818	19.26	113.9	67.3	21.21	10.71	252
8.0	30.76330	20.73	125.3	75.9	24.47	11.02	242
8.5	28.73553	22.31	138.3	85.4	27.56	11.31	234
9.0	26.63061	23.95	152.7	95.6	29.67	11.56	229
9.5	24.60677	25.59	167.8	106.0	30.50	11.77	226
10.0	22.76871	27.15	183.0	116.3	30.42	11.93	226
11.0	19.72821	30.00	213.0	135.9	29.31	12.16	228
12.0	17.39476	32.50	241.7	154.3	28.11	12.31	232
13.0	15.56886	34.71	269.2	171.6	27.10	12.41	238
14.0	14.10572	36.69	295.9	188.2	26.28	12.47	244
15.0	12.90812	38.48	321.9	204.1	25.61	12.51	250
16.0	11.90987	40.11	347.2	219.6	25.06	12.55	257
17.0	11.06472	41.62	372.0	234.6	24.59	12.57	264
18.0	10.33952	43.01	396.4	249.4	24.20	12.58	270
19.0	9.70997	44.31	420.4	263.9	23.87	12.59	277
20.0	9.15791	45.53	444.1	278.2	23.58	12.60	283
22.0	8.23480	47.75	490.8	306.2	23.11	12.61	296
24.0	7.48983	49.74	536.7	333.7	22.76	12.61	308
26.0	6.87622	51.55	581.9	360.8	22.47	12.61	319
28.0	6.36063	53.21	626.6	387.6	22.25	12.61	330
30.0	5.92063	54.74	670.9	414.2	22.07	12.60	341
32.0	5.54026	56.16	714.9	440.5	21.92	12.60	351
34.0	5.20782	57.48	758.6	466.7	21.79	12.59	361
36.0	4.91456	58.73	802.1	492.8	21.68	12.59	371
38.0	4.65373	59.90	845.3	518.7	21.59	12.58	381
40.0	4.42011	61.00	888.4	544.6	21.51	12.58	390
45.0	3.92982	63.53	995.6	608.8	21.36	12.57	412
50.0	3.53976	65.77	1102.1	672.7	21.25	12.56	433
55.0	3.22156	67.79	1208.1	736.3	21.16	12.55	453
60.0	2.95675	69.63	1313.8	799.7	21.10	12.54	472
65.0	2.73278	71.32	1419.1	862.9	21.05	12.54	490
70.0	2.54075	72.88	1524.3	926.1	21.01	12.53	507
75.0	2.37423	74.32	1629.2	989.1	20.98	12.53	524
80.0	2.22839	75.68	1734.1	1052.0	20.95	12.52	540
85.0	2.09958	76.95	1838.8	1114.9	20.93	12.52	556
90.0	1.98496	78.14	1943.4	1177.7	20.91	12.52	572
95.0	1.88228	79.27	2047.9	1240.4	20.90	12.52	587
100.0	1.78977	80.34	2152.4	1303.2	20.89	12.51	601

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

15 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	1.62971	82.33	2361.1	1428.5	20.86	12.51	629
120.0	1.49603	84.15	2569.7	1553.7	20.85	12.51	656
130.0	1.38269	85.82	2778.1	1678.9	20.84	12.50	682
140.0	1.28536	87.36	2986.5	1804.0	20.83	12.50	707
150.0	1.20086	88.80	3194.7	1929.0	20.82	12.50	731
160.0	1.12681	90.14	3402.9	2054.0	20.82	12.50	754
170.0	1.06137	91.40	3611.0	2179.0	20.81	12.50	777
180.0	1.00313	92.59	3819.1	2303.9	20.81	12.49	799
190.0	0.95095	93.72	4027.1	2428.8	20.80	12.49	820
200.0	0.90394	94.78	4235.1	2553.7	20.80	12.49	841
210.0	0.86136	95.80	4443.1	2678.6	20.80	12.49	861
220.0	0.82262	96.77	4651.1	2803.4	20.80	12.49	881
230.0	0.78721	97.69	4859.1	2928.3	20.79	12.49	900
240.0	0.75472	98.58	5067.0	3053.1	20.79	12.49	919
250.0	0.72482	99.42	5274.9	3178.0	20.79	12.49	938
260.0	0.69719	100.24	5482.8	3302.8	20.79	12.49	956
270.0	0.67159	101.02	5690.7	3427.6	20.79	12.49	974
280.0	0.64781	101.78	5898.6	3552.4	20.79	12.49	992
290.0	0.62565	102.51	6106.5	3677.2	20.79	12.49	1009
300.0	0.60496	103.22	6314.4	3802.0	20.79	12.49	1026
310.0	0.58560	103.90	6522.3	3926.8	20.79	12.49	1043
320.0	0.56743	104.56	6730.2	4051.6	20.79	12.49	1059
330.0	0.55036	105.20	6938.0	4176.4	20.79	12.48	1075
340.0	0.53429	105.82	7145.9	4301.1	20.79	12.48	1091
350.0	0.51913	106.42	7353.8	4425.9	20.79	12.48	1107
360.0	0.50480	107.00	7561.6	4550.7	20.79	12.48	1122
370.0	0.49125	107.57	7769.5	4675.5	20.79	12.48	1138
380.0	0.47840	108.13	7977.3	4800.2	20.79	12.48	1153
390.0	0.46621	108.67	8185.2	4925.0	20.79	12.48	1168
400.0	0.45462	109.19	8393.0	5049.8	20.78	12.48	1182
420.0	0.43310	110.21	8808.7	5299.3	20.78	12.48	1211
440.0	0.41352	111.18	9224.4	5548.8	20.78	12.48	1239
460.0	0.39563	112.10	9640.1	5798.3	20.78	12.48	1267
480.0	0.37923	112.98	10055.7	6047.8	20.78	12.48	1294
500.0	0.36413	113.83	10471.4	6297.3	20.78	12.48	1320
550.0	0.33117	115.81	11510.6	6921.1	20.78	12.48	1384
600.0	0.30368	117.62	12549.8	7544.8	20.78	12.48	1445
650.0	0.28040	119.29	13588.9	8168.5	20.78	12.48	1504
700.0	0.26044	120.83	14628.1	8792.2	20.78	12.48	1560
750.0	0.24313	122.26	15667.2	9415.9	20.78	12.48	1615
800.0	0.22798	123.60	16706.4	10039.6	20.78	12.48	1667
850.0	0.21461	124.86	17745.6	10663.2	20.78	12.48	1718
900.0	0.20271	126.05	18784.7	11286.9	20.78	12.48	1768
950.0	0.19207	127.17	19823.9	11910.6	20.78	12.48	1816
1000.0	0.18249	128.24	20863.1	12534.2	20.78	12.48	1863
1100.0	0.16593	130.22	22941.4	13781.6	20.78	12.48	1954
1200.0	0.15213	132.03	25019.8	15028.9	20.78	12.48	2040
1300.0	0.14045	133.69	27098.2	16276.2	20.78	12.48	2123
1400.0	0.13043	135.23	29176.5	17523.5	20.78	12.48	2203
1500.0	0.12175	136.67	31254.9	18770.8	20.78	12.48	2280

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

20 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.0	43.01703	5.40	60.6	13.5	6.25	6.12	349
2.5	42.67440	6.66	63.4	15.9	5.98	5.55	361
3.0	42.23537	7.89	66.8	18.8	7.56	6.87	361
3.5	41.75202	9.15	70.9	22.4	8.67	7.75	357
4.0	41.23250	10.36	75.4	26.3	9.46	8.28	351
4.5	40.67016	11.51	80.4	30.5	10.16	8.66	343
5.0	40.05375	12.62	85.6	35.0	10.90	8.96	335
5.5	39.37033	13.70	91.3	39.8	11.75	9.26	327
6.0	38.60587	14.76	97.4	44.9	12.76	9.55	319
6.5	37.74508	15.83	104.1	50.4	13.97	9.84	310
7.0	36.77144	16.92	111.4	56.3	15.43	10.14	301
7.5	35.66794	18.04	119.5	62.7	17.16	10.44	292
8.0	34.41969	19.21	128.6	69.7	19.19	10.73	283
8.5	33.01999	20.44	138.8	77.4	21.45	11.00	274
9.0	31.48038	21.73	150.1	85.7	23.78	11.26	267
9.5	29.84091	23.08	162.5	94.6	25.86	11.49	261
10.0	28.16880	24.45	175.9	103.9	27.38	11.70	256
11.0	25.00564	27.13	204.0	122.9	28.49	12.01	253
12.0	22.32211	29.59	232.3	141.6	28.12	12.22	254
13.0	20.12795	31.82	260.1	159.4	27.38	12.35	257
14.0	18.32848	33.82	287.1	176.5	26.66	12.45	261
15.0	16.83262	35.64	313.5	193.1	26.04	12.51	266
16.0	15.57114	37.30	339.2	209.1	25.51	12.56	271
17.0	14.49335	38.83	364.5	224.7	25.05	12.59	277
18.0	13.56191	40.25	389.3	239.9	24.66	12.61	283
19.0	12.74881	41.58	413.8	254.9	24.32	12.62	288
20.0	12.03273	42.82	438.0	269.6	24.02	12.63	294
22.0	10.82896	45.08	485.5	298.4	23.53	12.64	305
24.0	9.85561	47.11	532.2	326.6	23.14	12.65	316
26.0	9.05128	48.95	578.2	354.3	22.83	12.65	327
28.0	8.37466	50.63	623.5	381.6	22.57	12.64	338
30.0	7.79690	52.18	668.5	408.6	22.36	12.64	348
32.0	7.29733	53.62	713.0	435.3	22.18	12.63	358
34.0	6.86069	54.96	757.2	461.8	22.04	12.63	368
36.0	6.47550	56.22	801.2	488.2	21.91	12.62	378
38.0	6.13295	57.40	844.9	514.4	21.80	12.61	387
40.0	5.82615	58.51	888.4	540.5	21.70	12.61	396
45.0	5.18237	61.06	996.4	605.3	21.52	12.60	418
50.0	4.67023	63.32	1103.6	669.7	21.38	12.58	438
55.0	4.25242	65.35	1210.2	733.7	21.27	12.57	458
60.0	3.90467	67.20	1316.4	797.4	21.19	12.57	477
65.0	3.61046	68.89	1422.2	860.9	21.13	12.56	495
70.0	3.35814	70.46	1527.7	924.2	21.08	12.55	512
75.0	3.13926	71.91	1633.0	987.5	21.04	12.55	529
80.0	2.94750	73.27	1738.1	1050.6	21.01	12.54	545
85.0	2.77806	74.54	1843.1	1113.6	20.98	12.54	561
90.0	2.62723	75.74	1947.9	1176.5	20.95	12.53	576
95.0	2.49208	76.87	2052.6	1239.4	20.94	12.53	591
100.0	2.37025	77.94	2157.3	1302.3	20.92	12.53	605

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

20 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	2.15936	79.93	2366.3	1427.8	20.89	12.52	633
120.0	1.98312	81.75	2575.1	1553.2	20.87	12.52	660
130.0	1.83360	83.42	2783.7	1678.5	20.86	12.51	686
140.0	1.70512	84.97	2992.2	1803.7	20.84	12.51	711
150.0	1.59352	86.40	3200.6	1928.9	20.83	12.51	734
160.0	1.49567	87.75	3408.9	2053.9	20.83	12.51	758
170.0	1.40917	89.01	3617.1	2179.0	20.82	12.50	780
180.0	1.33214	90.20	3825.3	2304.0	20.81	12.50	802
190.0	1.26311	91.33	4033.4	2429.0	20.81	12.50	823
200.0	1.20090	92.39	4241.5	2553.9	20.81	12.50	844
210.0	1.14453	93.41	4449.5	2678.9	20.80	12.50	864
220.0	1.09322	94.38	4657.5	2803.8	20.80	12.50	884
230.0	1.04632	95.30	4865.5	2928.7	20.80	12.50	903
240.0	1.00328	96.19	5073.5	3053.6	20.80	12.49	922
250.0	0.96364	97.03	5281.4	3178.4	20.79	12.49	940
260.0	0.92702	97.85	5489.4	3303.3	20.79	12.49	959
270.0	0.89308	98.63	5697.3	3428.1	20.79	12.49	976
280.0	0.86154	99.39	5905.2	3553.0	20.79	12.49	994
290.0	0.83215	100.12	6113.1	3677.8	20.79	12.49	1011
300.0	0.80470	100.83	6321.0	3802.6	20.79	12.49	1028
310.0	0.77901	101.51	6528.9	3927.4	20.79	12.49	1045
320.0	0.75490	102.17	6736.8	4052.3	20.79	12.49	1061
330.0	0.73225	102.81	6944.6	4177.1	20.79	12.49	1077
340.0	0.71091	103.43	7152.5	4301.9	20.79	12.49	1093
350.0	0.69078	104.03	7360.4	4426.7	20.79	12.49	1109
360.0	0.67176	104.62	7568.2	4551.5	20.79	12.49	1124
370.0	0.65376	105.18	7776.1	4676.2	20.79	12.49	1140
380.0	0.63670	105.74	7983.9	4801.0	20.79	12.49	1155
390.0	0.62051	106.28	8191.8	4925.8	20.78	12.49	1169
400.0	0.60512	106.81	8399.6	5050.6	20.78	12.49	1184
420.0	0.57652	107.82	8815.3	5300.2	20.78	12.49	1213
440.0	0.55050	108.79	9231.0	5549.7	20.78	12.49	1241
460.0	0.52673	109.71	9646.7	5799.2	20.78	12.49	1269
480.0	0.50493	110.59	10062.3	6048.8	20.78	12.48	1296
500.0	0.48486	111.44	10478.0	6298.3	20.78	12.48	1322
550.0	0.44103	113.42	11517.1	6922.1	20.78	12.48	1386
600.0	0.40447	115.23	12556.3	7545.9	20.78	12.48	1447
650.0	0.37351	116.90	13595.4	8169.6	20.78	12.48	1505
700.0	0.34695	118.44	14634.5	8793.4	20.78	12.48	1561
750.0	0.32391	119.87	15673.6	9417.1	20.78	12.48	1616
800.0	0.30374	121.21	16712.8	10040.8	20.78	12.48	1668
850.0	0.28594	122.47	17751.9	10664.6	20.78	12.48	1719
900.0	0.27011	123.66	18791.0	11288.3	20.78	12.48	1769
950.0	0.25594	124.78	19830.2	11912.0	20.78	12.48	1817
1000.0	0.24318	125.85	20869.3	12535.7	20.78	12.48	1864
1100.0	0.22113	127.83	22947.6	13783.1	20.78	12.48	1955
1200.0	0.20275	129.64	25025.9	15030.5	20.78	12.48	2041
1300.0	0.18719	131.30	27104.2	16277.8	20.78	12.48	2124
1400.0	0.17384	132.84	29182.5	17525.2	20.78	12.48	2204
1500.0	0.16228	134.27	31260.8	18772.5	20.78	12.48	2281

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

25 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.0	44.02529	5.25	72.0	14.4	5.81	5.62	369
2.5	43.66166	6.44	74.6	16.6	5.77	5.29	384
3.0	43.23511	7.64	77.9	19.3	7.42	6.76	385
3.5	42.78690	8.88	81.9	22.7	8.52	7.69	381
4.0	42.32037	10.06	86.4	26.5	9.25	8.22	375
4.5	41.82769	11.19	91.2	30.6	9.85	8.58	369
5.0	41.29859	12.26	96.2	34.9	10.45	8.87	362
5.5	40.72268	13.28	101.6	39.4	11.13	9.14	355
6.0	40.08984	14.29	107.4	44.2	11.92	9.40	347
6.5	39.39007	15.27	113.6	49.3	12.84	9.68	340
7.0	38.61341	16.26	120.3	54.7	13.92	9.96	332
7.5	37.74991	17.27	127.5	60.4	15.17	10.23	324
8.0	36.79027	18.29	135.5	66.6	16.61	10.51	316
8.5	35.72721	19.35	144.2	73.3	18.23	10.78	308
9.0	34.55804	20.44	153.7	80.4	20.00	11.03	301
9.5	33.28856	21.57	164.2	88.1	21.84	11.27	294
10.0	31.93704	22.73	175.5	96.2	23.60	11.49	288
11.0	29.12581	25.12	200.6	113.6	26.24	11.85	280
12.0	26.43665	27.46	227.5	131.6	27.26	12.11	277
13.0	24.06879	29.64	254.7	149.5	27.20	12.29	277
14.0	22.05318	31.64	281.7	166.9	26.75	12.41	280
15.0	20.34470	33.47	308.2	183.7	26.22	12.50	283
16.0	18.88637	35.14	334.2	200.1	25.73	12.56	287
17.0	17.62921	36.69	359.7	216.0	25.29	12.60	292
18.0	16.53477	38.13	384.8	231.6	24.91	12.63	296
19.0	15.57339	39.46	409.5	246.9	24.58	12.65	301
20.0	14.72213	40.72	434.0	261.9	24.28	12.66	306
22.0	13.28165	43.01	482.0	291.3	23.79	12.68	316
24.0	12.10873	45.06	529.2	320.0	23.40	12.68	326
26.0	11.13455	46.92	575.7	348.2	23.08	12.68	337
28.0	10.31199	48.62	621.5	375.9	22.81	12.68	347
30.0	9.60772	50.19	666.9	403.3	22.58	12.67	356
32.0	8.99754	51.64	711.9	430.4	22.39	12.67	366
34.0	8.46344	52.99	756.5	457.2	22.23	12.66	376
36.0	7.99174	54.26	800.8	483.9	22.09	12.65	385
38.0	7.57189	55.45	844.9	510.3	21.97	12.64	394
40.0	7.19560	56.57	888.7	536.7	21.86	12.64	403
45.0	6.40530	59.13	997.5	602.0	21.65	12.62	424
50.0	5.77601	61.41	1105.3	666.8	21.49	12.61	444
55.0	5.26227	63.45	1212.5	731.1	21.37	12.60	464
60.0	4.83441	65.30	1319.1	795.1	21.28	12.59	482
65.0	4.47224	67.00	1425.3	858.9	21.21	12.58	500
70.0	4.16149	68.57	1531.2	922.4	21.15	12.57	517
75.0	3.89179	70.03	1636.8	985.9	21.10	12.56	534
80.0	3.65540	71.39	1742.1	1049.1	21.06	12.56	550
85.0	3.44644	72.67	1847.3	1112.3	21.02	12.55	565
90.0	3.26035	73.87	1952.4	1175.4	20.99	12.55	580
95.0	3.09353	75.00	2057.3	1238.4	20.97	12.54	595
100.0	2.94311	76.08	2162.1	1301.4	20.95	12.54	610

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

25 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	2.68258	78.07	2371.4	1427.1	20.92	12.53	637
120.0	2.46471	79.89	2580.5	1552.7	20.89	12.53	664
130.0	2.27975	81.56	2789.3	1678.1	20.87	12.52	689
140.0	2.12073	83.11	2997.9	1803.4	20.86	12.52	714
150.0	1.98253	84.55	3206.4	1928.7	20.85	12.52	738
160.0	1.86130	85.89	3414.9	2053.9	20.84	12.51	761
170.0	1.75409	87.15	3623.2	2179.0	20.83	12.51	783
180.0	1.65858	88.35	3831.4	2304.1	20.82	12.51	805
190.0	1.57295	89.47	4039.6	2429.1	20.82	12.51	826
200.0	1.49575	90.54	4247.7	2554.2	20.81	12.51	847
210.0	1.42578	91.55	4455.8	2679.1	20.81	12.50	867
220.0	1.36208	92.52	4663.9	2804.1	20.80	12.50	886
230.0	1.30383	93.45	4871.9	2929.0	20.80	12.50	906
240.0	1.25036	94.33	5079.9	3054.0	20.80	12.50	925
250.0	1.20111	95.18	5287.9	3178.9	20.80	12.50	943
260.0	1.15560	96.00	5495.9	3303.8	20.80	12.50	961
270.0	1.11341	96.78	5703.8	3428.6	20.79	12.50	979
280.0	1.07419	97.54	5911.8	3553.5	20.79	12.50	996
290.0	1.03765	98.27	6119.7	3678.4	20.79	12.50	1014
300.0	1.00351	98.97	6327.6	3803.2	20.79	12.50	1030
310.0	0.97154	99.65	6535.5	3928.1	20.79	12.49	1047
320.0	0.94155	100.31	6743.4	4052.9	20.79	12.49	1063
330.0	0.91336	100.95	6951.2	4177.7	20.79	12.49	1079
340.0	0.88681	101.57	7159.1	4302.6	20.79	12.49	1095
350.0	0.86175	102.18	7367.0	4427.4	20.79	12.49	1111
360.0	0.83808	102.76	7574.8	4552.2	20.79	12.49	1126
370.0	0.81567	103.33	7782.7	4677.0	20.79	12.49	1142
380.0	0.79442	103.89	7990.6	4801.8	20.79	12.49	1157
390.0	0.77426	104.43	8198.4	4926.6	20.78	12.49	1171
400.0	0.75509	104.95	8406.2	5051.4	20.78	12.49	1186
420.0	0.71947	105.97	8821.9	5301.0	20.78	12.49	1215
440.0	0.68706	106.93	9237.6	5550.6	20.78	12.49	1243
460.0	0.65744	107.86	9653.3	5800.2	20.78	12.49	1270
480.0	0.63028	108.74	10068.9	6049.7	20.78	12.49	1297
500.0	0.60526	109.59	10484.6	6299.3	20.78	12.49	1323
550.0	0.55063	111.57	11523.7	6923.2	20.78	12.49	1387
600.0	0.50504	113.38	12562.8	7547.0	20.78	12.49	1448
650.0	0.46643	115.04	13601.9	8170.8	20.78	12.49	1506
700.0	0.43329	116.58	14641.0	8794.6	20.78	12.48	1563
750.0	0.40456	118.02	15680.0	9418.4	20.78	12.48	1617
800.0	0.37939	119.36	16719.1	10042.1	20.78	12.48	1669
850.0	0.35717	120.62	17758.2	10665.9	20.78	12.48	1720
900.0	0.33741	121.80	18797.3	11289.6	20.78	12.48	1770
950.0	0.31973	122.93	19836.4	11913.4	20.78	12.48	1818
1000.0	0.30380	123.99	20875.5	12537.1	20.78	12.48	1865
1100.0	0.27627	125.98	22953.7	13784.6	20.78	12.48	1955
1200.0	0.25332	127.78	25031.9	15032.0	20.78	12.48	2042
1300.0	0.23389	129.45	27110.2	16279.5	20.78	12.48	2125
1400.0	0.21723	130.99	29188.4	17526.9	20.78	12.48	2204
1500.0	0.20278	132.42	31266.7	18774.3	20.78	12.48	2281

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

30 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.0	44.94791	5.09	83.0	15.4	5.49	5.21	388
2.5	44.55203	6.22	85.6	17.3	5.64	5.12	405
3.0	44.12644	7.41	88.8	20.0	7.37	6.70	405
3.5	43.69953	8.64	92.8	23.3	8.45	7.66	402
4.0	43.26884	9.81	97.2	27.0	9.12	8.20	397
4.5	42.82436	10.92	101.9	30.9	9.64	8.53	391
5.0	42.35547	11.96	106.9	35.1	10.15	8.80	385
5.5	41.85257	12.95	112.1	39.4	10.71	9.04	379
6.0	41.30714	13.91	117.6	44.0	11.35	9.29	372
6.5	40.71143	14.85	123.4	48.8	12.11	9.54	365
7.0	40.05827	15.78	129.7	53.8	12.97	9.80	358
7.5	39.34088	16.70	136.4	59.2	13.97	10.07	351
8.0	38.55299	17.64	143.7	64.8	15.09	10.33	344
8.5	37.68922	18.59	151.5	70.9	16.35	10.59	337
9.0	36.74588	19.57	160.1	77.3	17.73	10.84	330
9.5	35.72231	20.56	169.3	84.2	19.21	11.08	324
10.0	34.62269	21.59	179.3	91.5	20.74	11.30	317
11.0	32.24606	23.70	201.5	107.2	23.60	11.69	307
12.0	29.78285	25.85	226.2	124.1	25.59	11.99	301
13.0	27.43388	27.94	252.3	141.5	26.45	12.21	298
14.0	25.32304	29.90	278.8	158.8	26.52	12.37	298
15.0	23.47814	31.73	305.2	175.7	26.23	12.48	300
16.0	21.87639	33.41	331.3	192.3	25.84	12.55	303
17.0	20.48133	34.96	356.9	208.5	25.44	12.61	306
18.0	19.25812	36.40	382.1	224.3	25.07	12.64	310
19.0	18.17755	37.75	407.0	239.8	24.74	12.67	315
20.0	17.21608	39.01	431.6	255.1	24.45	12.69	319
22.0	15.57907	41.32	480.0	284.9	23.96	12.71	328
24.0	14.23655	43.39	527.5	314.0	23.57	12.72	337
26.0	13.11497	45.26	574.3	342.6	23.24	12.72	346
28.0	12.16347	46.97	620.6	370.6	22.97	12.71	356
30.0	11.34572	48.55	666.3	398.3	22.75	12.71	365
32.0	10.63506	50.01	711.6	425.7	22.55	12.70	374
34.0	10.01149	51.37	756.5	452.9	22.38	12.69	383
36.0	9.45970	52.65	801.1	479.8	22.23	12.68	392
38.0	8.96779	53.85	845.4	506.5	22.11	12.67	401
40.0	8.52633	54.98	889.5	533.0	21.99	12.67	409
45.0	7.59756	57.55	998.9	598.8	21.77	12.65	430
50.0	6.85665	59.84	1107.3	663.9	21.59	12.63	450
55.0	6.25097	61.89	1214.9	728.6	21.46	12.62	469
60.0	5.74605	63.75	1321.9	792.9	21.36	12.61	487
65.0	5.31829	65.46	1428.5	856.9	21.27	12.60	505
70.0	4.95100	67.03	1534.7	920.7	21.21	12.59	522
75.0	4.63204	68.49	1640.6	984.3	21.15	12.58	538
80.0	4.35232	69.86	1746.2	1047.8	21.10	12.57	554
85.0	4.10494	71.13	1851.6	1111.1	21.07	12.57	570
90.0	3.88452	72.34	1956.8	1174.3	21.03	12.56	585
95.0	3.68685	73.47	2061.9	1237.4	21.00	12.56	599
100.0	3.50853	74.55	2166.9	1300.5	20.98	12.55	614

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

30 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	3.19952	76.55	2376.5	1426.4	20.94	12.54	641
120.0	2.94092	78.37	2585.8	1552.1	20.91	12.54	668
130.0	2.72125	80.04	2794.8	1677.7	20.89	12.53	693
140.0	2.53228	81.59	3003.6	1803.2	20.87	12.53	718
150.0	2.36797	83.03	3212.3	1928.5	20.86	12.52	741
160.0	2.22377	84.37	3420.8	2053.8	20.85	12.52	764
170.0	2.09618	85.64	3629.2	2179.0	20.84	12.52	786
180.0	1.98248	86.83	3837.5	2304.2	20.83	12.52	808
190.0	1.88050	87.96	4045.8	2429.3	20.82	12.51	829
200.0	1.78853	89.02	4254.0	2554.4	20.82	12.51	850
210.0	1.70515	90.04	4462.1	2679.4	20.81	12.51	870
220.0	1.62922	91.01	4670.2	2804.4	20.81	12.51	889
230.0	1.55976	91.93	4878.3	2929.4	20.81	12.51	908
240.0	1.49600	92.82	5086.3	3054.4	20.80	12.51	927
250.0	1.43724	93.67	5294.4	3179.3	20.80	12.50	946
260.0	1.38294	94.48	5502.3	3304.2	20.80	12.50	964
270.0	1.33259	95.27	5710.3	3429.2	20.80	12.50	981
280.0	1.28578	96.02	5918.3	3554.1	20.79	12.50	999
290.0	1.24215	96.75	6126.2	3679.0	20.79	12.50	1016
300.0	1.20138	97.46	6334.1	3803.8	20.79	12.50	1033
310.0	1.16321	98.14	6542.0	3928.7	20.79	12.50	1049
320.0	1.12739	98.80	6749.9	4053.6	20.79	12.50	1065
330.0	1.09371	99.44	6957.8	4178.4	20.79	12.50	1082
340.0	1.06198	100.06	7165.7	4303.3	20.79	12.50	1097
350.0	1.03205	100.66	7373.6	4428.1	20.79	12.50	1113
360.0	1.00375	101.25	7581.4	4553.0	20.79	12.50	1128
370.0	0.97697	101.82	7789.3	4677.8	20.79	12.50	1143
380.0	0.95158	102.37	7997.1	4802.6	20.79	12.50	1158
390.0	0.92747	102.91	8205.0	4927.4	20.79	12.49	1173
400.0	0.90456	103.44	8412.8	5052.3	20.78	12.49	1188
420.0	0.86196	104.45	8828.5	5301.9	20.78	12.49	1217
440.0	0.82320	105.42	9244.2	5551.5	20.78	12.49	1245
460.0	0.78778	106.34	9659.8	5801.1	20.78	12.49	1272
480.0	0.75527	107.23	10075.5	6050.7	20.78	12.49	1299
500.0	0.72535	108.08	10491.1	6300.3	20.78	12.49	1325
550.0	0.65997	110.06	11530.2	6924.2	20.78	12.49	1389
600.0	0.60540	111.86	12569.3	7548.1	20.78	12.49	1449
650.0	0.55916	113.53	13608.3	8171.9	20.78	12.49	1508
700.0	0.51949	115.07	14647.4	8795.8	20.78	12.49	1564
750.0	0.48507	116.50	15686.4	9419.6	20.78	12.49	1618
800.0	0.45492	117.84	16725.5	10043.4	20.78	12.49	1671
850.0	0.42831	119.10	17764.5	10667.2	20.78	12.49	1721
900.0	0.40463	120.29	18803.6	11291.0	20.78	12.49	1771
950.0	0.38344	121.41	19842.7	11914.8	20.78	12.48	1819
1000.0	0.36435	122.48	20881.7	12538.6	20.78	12.48	1866
1100.0	0.33136	124.46	22959.9	13786.1	20.78	12.48	1956
1200.0	0.30385	126.27	25038.0	15033.6	20.78	12.48	2042
1300.0	0.28055	127.93	27116.2	16281.1	20.78	12.48	2125
1400.0	0.26058	129.47	29194.4	17528.6	20.78	12.48	2205
1500.0	0.24325	130.91	31272.6	18776.1	20.78	12.48	2282

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

40 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	46.13409	5.79	106.8	19.0	5.66	4.94	442
3.0	45.68543	6.99	110.1	21.4	7.44	6.70	441
3.5	45.27500	8.22	114.1	24.6	8.46	7.71	438
4.0	44.88577	9.39	118.5	28.2	9.02	8.21	434
4.5	44.50160	10.47	123.1	32.0	9.41	8.50	430
5.0	44.10952	11.48	127.9	36.0	9.77	8.72	424
5.5	43.69952	12.43	132.9	40.1	10.17	8.91	419
6.0	43.26380	13.34	138.1	44.4	10.64	9.12	414
6.5	42.79614	14.21	143.5	48.8	11.19	9.33	408
7.0	42.29140	15.06	149.3	53.5	11.82	9.56	402
7.5	41.74526	15.90	155.4	58.3	12.54	9.80	397
8.0	41.15398	16.74	161.8	63.4	13.34	10.04	391
8.5	40.51439	17.57	168.7	68.7	14.22	10.29	385
9.0	39.82395	18.41	176.1	74.3	15.19	10.53	379
9.5	39.08093	19.26	183.9	80.2	16.23	10.76	374
10.0	38.28477	20.12	192.3	86.5	17.33	10.99	368
11.0	36.53932	21.88	210.8	99.9	19.66	11.40	357
12.0	34.62428	23.69	231.6	114.5	21.91	11.75	348
13.0	32.61841	25.52	254.5	130.2	23.75	12.03	341
14.0	30.62580	27.33	278.9	146.5	24.93	12.25	337
15.0	28.73769	29.07	304.1	163.1	25.49	12.40	335
16.0	27.00593	30.72	329.7	179.6	25.60	12.52	335
17.0	25.44472	32.27	355.3	196.0	25.46	12.60	337
18.0	24.04604	33.72	380.6	212.0	25.22	12.66	339
19.0	22.79291	35.07	405.7	227.9	24.95	12.70	342
20.0	21.66666	36.35	430.5	243.4	24.68	12.73	345
22.0	19.72791	38.67	479.3	273.9	24.19	12.76	352
24.0	18.11886	40.76	527.3	303.6	23.79	12.78	359
26.0	16.76094	42.65	574.5	332.7	23.46	12.78	367
28.0	15.59865	44.38	621.2	361.3	23.18	12.77	375
30.0	14.59193	45.97	667.3	389.5	22.95	12.77	383
32.0	13.71110	47.44	713.0	417.4	22.75	12.76	392
34.0	12.93370	48.82	758.3	444.9	22.58	12.75	400
36.0	12.24231	50.11	803.3	472.2	22.43	12.74	408
38.0	11.62329	51.31	848.0	499.3	22.30	12.73	416
40.0	11.06571	52.45	892.5	526.2	22.18	12.72	424
45.0	9.88663	55.05	1002.8	592.8	21.94	12.70	443
50.0	8.94068	57.35	1112.0	658.6	21.75	12.68	462
55.0	8.16419	59.42	1220.3	723.9	21.60	12.66	481
60.0	7.51485	61.29	1328.0	788.7	21.48	12.64	498
65.0	6.96340	63.01	1435.2	853.1	21.39	12.63	515
70.0	6.48898	64.59	1541.9	917.3	21.31	12.62	532
75.0	6.07628	66.06	1648.3	981.3	21.24	12.61	548
80.0	5.71386	67.43	1754.4	1045.0	21.19	12.60	564
85.0	5.39293	68.71	1860.2	1108.6	21.14	12.59	579
90.0	5.10666	69.92	1965.8	1172.1	21.10	12.59	593
95.0	4.84968	71.06	2071.2	1235.5	21.07	12.58	608
100.0	4.61764	72.14	2176.5	1298.7	21.04	12.58	622

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

40 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	4.21505	74.14	2386.6	1425.0	20.99	12.57	649
120.0	3.87765	75.97	2596.3	1551.1	20.95	12.56	675
130.0	3.59067	77.64	2805.7	1676.9	20.92	12.55	700
140.0	3.34353	79.19	3014.8	1802.6	20.90	12.55	724
150.0	3.12841	80.63	3223.7	1928.2	20.88	12.54	748
160.0	2.93943	81.98	3432.5	2053.6	20.87	12.54	771
170.0	2.77209	83.24	3641.1	2179.0	20.86	12.53	793
180.0	2.62284	84.44	3849.6	2304.3	20.85	12.53	814
190.0	2.48890	85.56	4058.0	2429.5	20.84	12.53	835
200.0	2.36802	86.63	4266.3	2554.7	20.83	12.52	855
210.0	2.25836	87.65	4474.6	2679.9	20.82	12.52	875
220.0	2.15843	88.62	4682.8	2805.0	20.82	12.52	895
230.0	2.06699	89.54	4891.0	2930.1	20.81	12.52	914
240.0	1.98299	90.43	5099.1	3055.1	20.81	12.52	932
250.0	1.90557	91.28	5307.1	3180.2	20.81	12.52	951
260.0	1.83397	92.09	5515.2	3305.2	20.80	12.51	968
270.0	1.76756	92.88	5723.2	3430.2	20.80	12.51	986
280.0	1.70580	93.63	5931.2	3555.1	20.80	12.51	1003
290.0	1.64822	94.36	6139.2	3680.1	20.80	12.51	1020
300.0	1.59440	95.07	6347.1	3805.0	20.79	12.51	1037
310.0	1.54398	95.75	6555.1	3929.9	20.79	12.51	1054
320.0	1.49666	96.41	6763.0	4054.9	20.79	12.51	1070
330.0	1.45215	97.05	6970.9	4179.8	20.79	12.51	1086
340.0	1.41021	97.67	7178.8	4304.7	20.79	12.51	1101
350.0	1.37063	98.27	7386.7	4429.6	20.79	12.50	1117
360.0	1.33321	98.86	7594.5	4554.4	20.79	12.50	1132
370.0	1.29778	99.43	7802.4	4679.3	20.79	12.50	1147
380.0	1.26419	99.98	8010.3	4804.2	20.79	12.50	1162
390.0	1.23229	100.52	8218.1	4929.0	20.79	12.50	1177
400.0	1.20196	101.05	8426.0	5053.9	20.78	12.50	1192
420.0	1.14557	102.06	8841.6	5303.6	20.78	12.50	1220
440.0	1.09424	103.03	9257.3	5553.3	20.78	12.50	1248
460.0	1.04731	103.95	9673.0	5802.9	20.78	12.50	1275
480.0	1.00423	104.84	10088.6	6052.6	20.78	12.50	1302
500.0	0.96456	105.69	10504.2	6302.2	20.78	12.50	1328
550.0	0.87787	107.67	11543.3	6926.3	20.78	12.50	1392
600.0	0.80547	109.48	12582.3	7550.3	20.78	12.49	1452
650.0	0.74410	111.14	13621.3	8174.2	20.78	12.49	1510
700.0	0.69141	112.68	14660.2	8798.2	20.78	12.49	1566
750.0	0.64570	114.11	15699.2	9422.1	20.78	12.49	1620
800.0	0.60565	115.45	16738.2	10046.0	20.78	12.49	1673
850.0	0.57027	116.71	17777.2	10669.9	20.78	12.49	1723
900.0	0.53880	117.90	18816.2	11293.7	20.78	12.49	1773
950.0	0.51062	119.03	19855.1	11917.6	20.78	12.49	1821
1000.0	0.48525	120.09	20894.1	12541.4	20.78	12.49	1868
1100.0	0.44137	122.07	22972.1	13789.1	20.78	12.49	1958
1200.0	0.40477	123.88	25050.2	15036.8	20.78	12.49	2044
1300.0	0.37377	125.54	27128.2	16284.4	20.78	12.49	2127
1400.0	0.34718	127.08	29206.3	17532.0	20.78	12.49	2206
1500.0	0.32413	128.52	31284.4	18779.6	20.78	12.49	2283

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

50 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
2.5	47.54272	5.31	127.3	20.7	6.02	4.99	476
3.0	47.04352	6.57	130.7	23.0	7.72	6.86	471
3.5	46.62630	7.84	134.8	26.2	8.63	7.85	469
4.0	46.25420	9.03	139.3	29.8	9.07	8.31	465
4.5	45.90294	10.11	143.9	33.5	9.34	8.54	462
5.0	45.55597	11.11	148.6	37.4	9.58	8.69	457
5.5	45.20174	12.03	153.5	41.4	9.87	8.83	453
6.0	44.83193	12.91	158.5	45.5	10.21	8.99	448
6.5	44.44044	13.74	163.7	49.7	10.63	9.17	444
7.0	44.02263	14.55	169.1	54.1	11.13	9.37	439
7.5	43.57488	15.33	174.8	58.6	11.69	9.59	434
8.0	43.09431	16.11	180.8	63.3	12.32	9.81	429
8.5	42.57862	16.87	187.2	68.2	13.02	10.04	424
9.0	42.02598	17.64	193.9	73.3	13.77	10.27	419
9.5	41.43507	18.41	201.0	78.7	14.59	10.50	415
10.0	40.80506	19.18	208.5	84.3	15.45	10.73	410
11.0	39.42785	20.73	224.8	96.3	17.31	11.15	400
12.0	37.90351	22.32	243.1	109.4	19.24	11.52	391
13.0	36.25947	23.94	263.3	123.6	21.10	11.84	382
14.0	34.54352	25.56	285.2	138.6	22.70	12.09	376
15.0	32.81704	27.17	308.5	154.2	23.88	12.30	371
16.0	31.13974	28.74	332.8	170.1	24.60	12.45	368
17.0	29.55538	30.24	357.6	186.2	24.94	12.57	367
18.0	28.08682	31.67	382.6	202.2	25.02	12.65	368
19.0	26.73990	33.02	407.6	218.1	24.93	12.71	369
20.0	25.50998	34.29	432.4	233.8	24.76	12.75	371
22.0	23.36150	36.64	481.6	264.7	24.35	12.80	376
24.0	21.55620	38.74	529.9	294.8	23.95	12.83	382
26.0	20.01974	40.64	577.4	324.3	23.61	12.83	389
28.0	18.69546	42.38	624.3	353.3	23.32	12.83	396
30.0	17.54124	43.98	670.7	381.9	23.08	12.82	403
32.0	16.52552	45.46	716.7	410.1	22.88	12.81	410
34.0	15.62425	46.84	762.3	438.0	22.70	12.80	417
36.0	14.81879	48.14	807.5	465.6	22.55	12.79	424
38.0	14.09441	49.35	852.5	493.0	22.41	12.78	432
40.0	13.43930	50.50	897.2	520.2	22.29	12.77	439
45.0	12.04580	53.11	1008.0	587.4	22.05	12.74	457
50.0	10.91998	55.42	1117.7	653.8	21.86	12.72	475
55.0	9.99091	57.50	1226.6	719.5	21.70	12.70	493
60.0	9.21075	59.38	1334.8	784.8	21.58	12.68	509
65.0	8.54603	61.10	1442.5	849.6	21.48	12.66	526
70.0	7.97265	62.69	1549.6	914.1	21.39	12.65	542
75.0	7.47279	64.17	1656.4	978.4	21.32	12.64	558
80.0	7.03302	65.54	1762.8	1042.4	21.26	12.63	573
85.0	6.64299	66.83	1869.0	1106.3	21.21	12.62	588
90.0	6.29463	68.04	1974.9	1170.0	21.16	12.61	602
95.0	5.98152	69.18	2080.6	1233.6	21.12	12.60	616
100.0	5.69851	70.26	2186.1	1297.1	21.09	12.60	630

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

50 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	5.20681	72.27	2396.7	1423.7	21.03	12.59	657
120.0	4.79406	74.10	2606.8	1550.0	20.99	12.58	683
130.0	4.44252	75.78	2816.6	1676.1	20.96	12.57	707
140.0	4.13942	77.33	3026.0	1802.0	20.93	12.56	731
150.0	3.87531	78.77	3235.1	1927.8	20.91	12.56	755
160.0	3.64308	80.12	3444.1	2053.4	20.89	12.55	777
170.0	3.43727	81.39	3652.9	2179.0	20.87	12.55	799
180.0	3.25357	82.58	3861.6	2304.4	20.86	12.54	820
190.0	3.08859	83.71	4070.1	2429.8	20.85	12.54	841
200.0	2.93959	84.78	4278.6	2555.1	20.84	12.54	861
210.0	2.80436	85.79	4487.0	2680.3	20.83	12.53	881
220.0	2.68105	86.76	4695.3	2805.6	20.83	12.53	900
230.0	2.56816	87.69	4903.5	2930.7	20.82	12.53	919
240.0	2.46442	88.57	5111.7	3055.9	20.82	12.53	937
250.0	2.36875	89.42	5319.8	3181.0	20.81	12.53	956
260.0	2.28024	90.24	5527.9	3306.1	20.81	12.52	973
270.0	2.19811	91.03	5736.0	3431.1	20.81	12.52	991
280.0	2.12171	91.78	5944.0	3556.2	20.80	12.52	1008
290.0	2.05044	92.51	6152.0	3681.2	20.80	12.52	1025
300.0	1.98381	93.22	6360.0	3806.2	20.80	12.52	1042
310.0	1.92138	93.90	6568.0	3931.1	20.80	12.52	1058
320.0	1.86277	94.56	6775.9	4056.1	20.79	12.52	1074
330.0	1.80762	95.20	6983.9	4181.1	20.79	12.51	1090
340.0	1.75565	95.82	7191.8	4306.0	20.79	12.51	1106
350.0	1.70658	96.42	7399.7	4430.9	20.79	12.51	1121
360.0	1.66019	97.01	7607.6	4555.9	20.79	12.51	1136
370.0	1.61625	97.58	7815.4	4680.8	20.79	12.51	1151
380.0	1.57458	98.13	8023.3	4805.7	20.79	12.51	1166
390.0	1.53500	98.67	8231.2	4930.6	20.79	12.51	1181
400.0	1.49736	99.20	8439.0	5055.5	20.79	12.51	1195
420.0	1.42737	100.21	8854.7	5305.3	20.78	12.51	1224
440.0	1.36363	101.18	9270.4	5555.0	20.78	12.51	1251
460.0	1.30533	102.10	9686.0	5804.7	20.78	12.51	1279
480.0	1.25182	102.99	10101.6	6054.4	20.78	12.50	1305
500.0	1.20252	103.84	10517.3	6304.1	20.78	12.50	1331
550.0	1.09474	105.82	11556.3	6928.3	20.78	12.50	1394
600.0	1.00468	107.62	12595.2	7552.4	20.78	12.50	1455
650.0	0.92831	109.29	13634.1	8176.5	20.78	12.50	1513
700.0	0.86273	110.83	14673.1	8800.5	20.78	12.50	1569
750.0	0.80580	112.26	15712.0	9424.5	20.78	12.50	1623
800.0	0.75591	113.60	16750.9	10048.5	20.78	12.50	1675
850.0	0.71184	114.86	17789.8	10672.5	20.78	12.49	1726
900.0	0.67263	116.05	18828.7	11296.4	20.78	12.49	1775
950.0	0.63750	117.17	19867.6	11920.4	20.78	12.49	1823
1000.0	0.60586	118.24	20906.5	12544.3	20.78	12.49	1869
1100.0	0.55116	120.22	22984.4	13792.1	20.78	12.49	1959
1200.0	0.50551	122.03	25062.3	15039.9	20.78	12.49	2045
1300.0	0.46684	123.69	27140.2	16287.7	20.78	12.49	2128
1400.0	0.43366	125.23	29218.2	17535.4	20.78	12.49	2208
1500.0	0.40489	126.66	31296.2	18783.1	20.78	12.49	2284

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

60 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	6.17542	70.74	2406.9	1422.4	21.07	12.61	665
120.0	5.69073	72.57	2617.3	1549.0	21.02	12.60	690
130.0	5.27731	74.25	2827.4	1675.3	20.99	12.59	715
140.0	4.92040	75.81	3037.1	1801.5	20.95	12.58	738
150.0	4.60908	77.25	3246.5	1927.4	20.93	12.57	761
160.0	4.33507	78.60	3455.7	2053.2	20.91	12.57	783
170.0	4.09201	79.87	3664.6	2178.9	20.89	12.56	805
180.0	3.87491	81.06	3873.5	2304.5	20.88	12.56	826
190.0	3.67979	82.19	4082.2	2430.0	20.86	12.55	847
200.0	3.50347	83.26	4290.7	2555.4	20.85	12.55	867
210.0	3.34333	84.28	4499.2	2680.8	20.84	12.55	886
220.0	3.19725	85.25	4707.6	2806.1	20.84	12.54	905
230.0	3.06343	86.17	4915.9	2931.4	20.83	12.54	924
240.0	2.94040	87.06	5124.2	3056.6	20.82	12.54	942
250.0	2.82689	87.91	5332.4	3181.8	20.82	12.54	960
260.0	2.72184	88.73	5540.6	3306.9	20.81	12.53	978
270.0	2.62433	89.51	5748.7	3432.0	20.81	12.53	996
280.0	2.53358	90.27	5956.8	3557.1	20.81	12.53	1013
290.0	2.44890	91.00	6164.8	3682.2	20.80	12.53	1029
300.0	2.36971	91.70	6372.9	3807.3	20.80	12.53	1046
310.0	2.29548	92.39	6580.9	3932.3	20.80	12.53	1062
320.0	2.22577	93.05	6788.8	4057.3	20.80	12.52	1078
330.0	2.16018	93.69	6996.8	4182.3	20.79	12.52	1094
340.0	2.09834	94.31	7204.7	4307.3	20.79	12.52	1110
350.0	2.03994	94.91	7412.6	4432.3	20.79	12.52	1125
360.0	1.98471	95.50	7620.5	4557.3	20.79	12.52	1140
370.0	1.93239	96.07	7828.4	4682.2	20.79	12.52	1155
380.0	1.88277	96.62	8036.3	4807.2	20.79	12.52	1170
390.0	1.83562	97.16	8244.2	4932.1	20.79	12.52	1184
400.0	1.79079	97.69	8452.0	5057.1	20.79	12.52	1199
420.0	1.70737	98.70	8867.7	5306.9	20.78	12.51	1227
440.0	1.63139	99.67	9283.4	5556.7	20.78	12.51	1255
460.0	1.56188	100.59	9699.0	5806.5	20.78	12.51	1282
480.0	1.49805	101.48	10114.6	6056.3	20.78	12.51	1308
500.0	1.43923	102.32	10530.3	6306.0	20.78	12.51	1334
550.0	1.31059	104.30	11569.2	6930.3	20.78	12.51	1397
600.0	1.20305	106.11	12608.1	7554.6	20.78	12.51	1458
650.0	1.11181	107.78	13647.0	8178.7	20.78	12.50	1515
700.0	1.03343	109.31	14685.9	8802.9	20.78	12.50	1571
750.0	0.96538	110.75	15724.7	9427.0	20.78	12.50	1625
800.0	0.90572	112.09	16763.5	10051.1	20.78	12.50	1677
850.0	0.85301	113.35	17802.4	10675.1	20.78	12.50	1728
900.0	0.80610	114.54	18841.2	11299.1	20.78	12.50	1777
950.0	0.76407	115.66	19880.1	11923.1	20.78	12.50	1824
1000.0	0.72621	116.73	20918.9	12547.1	20.78	12.50	1871
1100.0	0.66072	118.71	22996.7	13795.1	20.78	12.50	1961
1200.0	0.60606	120.51	25074.5	15043.0	20.78	12.49	2047
1300.0	0.55975	122.18	27152.3	16290.9	20.78	12.49	2129
1400.0	0.52002	123.72	29230.1	17538.8	20.78	12.49	2209
1500.0	0.48555	125.15	31308.0	18786.6	20.78	12.49	2285

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

60 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
3.0	48.26969	6.16	150.7	24.8	8.23	7.15	498
3.5	47.82828	7.49	155.1	27.9	8.95	8.09	495
4.0	47.45768	8.70	159.6	31.5	9.24	8.47	492
4.5	47.12317	9.80	164.3	35.2	9.38	8.62	489
5.0	46.80357	10.79	169.0	39.1	9.51	8.71	486
5.5	46.48514	11.71	173.8	43.0	9.69	8.80	482
6.0	46.15856	12.56	178.7	47.0	9.93	8.91	478
6.5	45.81728	13.37	183.7	51.0	10.26	9.05	474
7.0	45.45660	14.14	188.9	55.2	10.65	9.22	470
7.5	45.07304	14.89	194.4	59.5	11.11	9.41	466
8.0	44.66399	15.62	200.1	63.9	11.64	9.61	462
8.5	44.22748	16.35	206.0	68.6	12.21	9.83	458
9.0	43.76202	17.06	212.3	73.4	12.85	10.05	454
9.5	43.26652	17.78	218.9	78.4	13.53	10.27	450
10.0	42.74027	18.49	225.8	83.6	14.25	10.49	445
11.0	41.59462	19.92	240.8	94.7	15.80	10.91	437
12.0	40.32772	21.36	257.5	106.7	17.45	11.30	428
13.0	38.95100	22.83	275.8	119.7	19.13	11.64	420
14.0	37.48675	24.30	295.7	133.5	20.71	11.93	413
15.0	35.96822	25.78	317.1	148.1	22.09	12.17	407
16.0	34.43588	27.24	339.8	163.2	23.18	12.36	402
17.0	32.93008	28.67	363.4	178.7	23.93	12.51	399
18.0	31.48366	30.05	387.5	194.4	24.38	12.62	397
19.0	30.11794	31.38	412.0	210.2	24.58	12.70	396
20.0	28.84302	32.64	436.6	225.9	24.61	12.76	397
22.0	26.56701	34.98	485.7	256.9	24.41	12.83	400
24.0	24.62075	37.09	534.2	287.3	24.08	12.87	404
26.0	22.94783	39.00	582.0	317.1	23.75	12.88	410
28.0	21.49641	40.75	629.2	346.4	23.45	12.88	416
30.0	20.22479	42.36	675.9	375.3	23.20	12.88	422
32.0	19.10064	43.85	722.0	403.7	22.98	12.87	428
34.0	18.09892	45.24	767.8	431.9	22.79	12.85	435
36.0	17.20008	46.54	813.2	459.8	22.63	12.84	441
38.0	16.38863	47.76	858.3	487.4	22.49	12.83	448
40.0	15.65214	48.91	903.2	514.8	22.37	12.81	455
45.0	14.07680	51.53	1014.4	582.5	22.12	12.78	472
50.0	12.79512	53.85	1124.5	649.4	21.93	12.76	488
55.0	11.73137	55.93	1233.8	715.5	21.77	12.73	505
60.0	10.83400	57.82	1342.3	781.1	21.65	12.71	521
65.0	10.06654	59.55	1450.3	846.3	21.54	12.70	537
70.0	9.40250	61.14	1557.8	911.2	21.45	12.68	552
75.0	8.82214	62.62	1664.8	975.7	21.38	12.67	568
80.0	8.31045	64.00	1771.6	1040.0	21.31	12.66	582
85.0	7.85582	65.29	1878.0	1104.1	21.26	12.64	597
90.0	7.44911	66.50	1984.2	1168.0	21.21	12.64	611
95.0	7.08307	67.65	2090.1	1231.8	21.17	12.63	625
100.0	6.75182	68.73	2195.9	1295.4	21.13	12.62	638

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

70 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
3.0	49.40622	5.71	170.1	26.6	8.99	7.58	522
3.5	48.92490	7.13	174.8	29.8	9.40	8.41	518
4.0	48.54403	8.40	179.5	33.4	9.50	8.69	516
4.5	48.21521	9.52	184.2	37.1	9.50	8.76	514
5.0	47.91155	10.52	189.0	40.9	9.51	8.77	511
5.5	47.61657	11.43	193.8	44.8	9.59	8.79	508
6.0	47.31957	12.27	198.6	48.7	9.75	8.86	505
6.5	47.01329	13.06	203.5	52.7	9.99	8.96	501
7.0	46.69270	13.81	208.6	56.7	10.31	9.09	498
7.5	46.35419	14.53	213.8	60.8	10.69	9.26	494
8.0	45.99518	15.24	219.3	65.1	11.13	9.44	491
8.5	45.61379	15.93	225.0	69.5	11.63	9.64	487
9.0	45.20863	16.61	230.9	74.0	12.18	9.85	484
9.5	44.77874	17.28	237.2	78.8	12.77	10.07	480
10.0	44.32349	17.95	243.7	83.7	13.40	10.28	477
11.0	43.33585	19.29	257.8	94.1	14.75	10.70	469
12.0	42.24645	20.63	273.2	105.3	16.19	11.10	461
13.0	41.06115	21.99	290.2	117.4	17.69	11.46	454
14.0	39.79189	23.35	308.6	130.4	19.16	11.77	447
15.0	38.45736	24.72	328.5	144.0	20.54	12.03	440
16.0	37.08253	26.09	349.6	158.4	21.75	12.25	434
17.0	35.69615	27.44	371.9	173.2	22.73	12.43	430
18.0	34.32682	28.76	395.0	188.4	23.45	12.56	426
19.0	32.99894	30.04	418.7	203.8	23.93	12.67	424
20.0	31.73006	31.28	442.8	219.3	24.20	12.75	423
22.0	29.40442	33.59	491.4	250.2	24.31	12.85	424
24.0	27.36881	35.70	539.9	280.7	24.13	12.90	426
26.0	25.59546	37.62	587.8	310.7	23.85	12.92	430
28.0	24.04447	39.38	635.3	340.3	23.57	12.93	435
30.0	22.67825	41.00	682.1	369.4	23.31	12.92	441
32.0	21.46546	42.49	728.5	398.1	23.08	12.92	446
34.0	20.38091	43.88	774.5	426.4	22.88	12.90	452
36.0	19.40458	45.19	820.1	454.5	22.71	12.89	458
38.0	18.52044	46.41	865.3	482.3	22.56	12.87	464
40.0	17.71560	47.57	910.3	509.9	22.44	12.86	471
45.0	15.98581	50.19	1021.8	578.1	22.18	12.83	486
50.0	14.56951	52.52	1132.2	645.3	21.98	12.80	502
55.0	13.38760	54.61	1241.7	711.9	21.82	12.77	518
60.0	12.38590	56.50	1350.5	777.8	21.70	12.75	533
65.0	11.52587	58.23	1458.7	843.3	21.59	12.73	548
70.0	10.77931	59.83	1566.4	908.4	21.50	12.71	563
75.0	10.12502	61.31	1673.7	973.2	21.42	12.69	578
80.0	9.54679	62.69	1780.6	1037.7	21.36	12.68	592
85.0	9.03201	63.98	1887.3	1102.0	21.30	12.67	606
90.0	8.57071	65.20	1993.7	1166.1	21.25	12.66	620
95.0	8.15490	66.35	2099.8	1230.0	21.21	12.65	634
100.0	7.77812	67.43	2205.8	1293.8	21.17	12.64	647

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

70 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	7.12139	69.45	2417.1	1421.1	21.10	12.63	673
120.0	6.56811	71.28	2627.9	1548.0	21.05	12.61	698
130.0	6.09544	72.96	2838.2	1674.6	21.01	12.60	722
140.0	5.68685	74.52	3048.1	1800.9	20.98	12.59	745
150.0	5.33003	75.97	3257.8	1927.0	20.95	12.59	768
160.0	5.01568	77.32	3467.1	2053.0	20.93	12.58	790
170.0	4.73659	78.59	3676.3	2178.8	20.91	12.57	811
180.0	4.48710	79.78	3885.3	2304.5	20.89	12.57	832
190.0	4.26273	80.91	4094.1	2430.2	20.88	12.56	852
200.0	4.05983	81.98	4302.8	2555.7	20.86	12.56	872
210.0	3.87545	83.00	4511.4	2681.2	20.85	12.56	892
220.0	3.70716	83.97	4719.9	2806.6	20.85	12.55	911
230.0	3.55292	84.89	4928.3	2931.9	20.84	12.55	929
240.0	3.41105	85.78	5136.7	3057.3	20.83	12.55	948
250.0	3.28011	86.63	5344.9	3182.5	20.83	12.55	965
260.0	3.15887	87.45	5553.2	3307.7	20.82	12.54	983
270.0	3.04629	88.23	5761.3	3432.9	20.82	12.54	1000
280.0	2.94148	88.99	5969.5	3558.1	20.81	12.54	1017
290.0	2.84366	89.72	6177.6	3683.2	20.81	12.54	1034
300.0	2.75214	90.43	6385.6	3808.4	20.80	12.54	1050
310.0	2.66634	91.11	6593.6	3933.5	20.80	12.53	1067
320.0	2.58573	91.77	6801.6	4058.5	20.80	12.53	1083
330.0	2.50986	92.41	7009.6	4183.6	20.80	12.53	1098
340.0	2.43832	93.03	7217.6	4308.6	20.80	12.53	1114
350.0	2.37075	93.63	7425.5	4433.7	20.79	12.53	1129
360.0	2.30682	94.22	7633.4	4558.7	20.79	12.53	1144
370.0	2.24626	94.79	7841.3	4683.7	20.79	12.53	1159
380.0	2.18879	95.34	8049.2	4808.7	20.79	12.53	1174
390.0	2.13419	95.88	8257.1	4933.6	20.79	12.52	1188
400.0	2.08226	96.41	8465.0	5058.6	20.79	12.52	1203
420.0	1.98561	97.42	8880.7	5308.5	20.78	12.52	1231
440.0	1.89754	98.39	9296.4	5558.4	20.78	12.52	1258
460.0	1.81696	99.31	9712.0	5808.2	20.78	12.52	1285
480.0	1.74294	100.20	10127.6	6058.1	20.78	12.52	1312
500.0	1.67471	101.05	10543.2	6307.9	20.78	12.52	1338
550.0	1.52543	103.03	11582.1	6932.3	20.78	12.51	1400
600.0	1.40057	104.83	12621.0	7556.7	20.78	12.51	1460
650.0	1.29460	106.50	13659.8	8181.0	20.78	12.51	1518
700.0	1.20354	108.04	14698.6	8805.2	20.78	12.51	1574
750.0	1.12443	109.47	15737.4	9429.4	20.78	12.51	1627
800.0	1.05509	110.81	16776.2	10053.6	20.78	12.51	1679
850.0	0.99379	112.07	17815.0	10677.7	20.78	12.50	1730
900.0	0.93922	113.26	18853.8	11301.8	20.78	12.50	1779
950.0	0.89033	114.38	19892.5	11925.9	20.78	12.50	1826
1000.0	0.84628	115.45	20931.3	12550.0	20.78	12.50	1873
1100.0	0.77006	117.43	23009.0	13798.1	20.78	12.50	1963
1200.0	0.70644	119.23	25086.6	15046.1	20.78	12.50	2048
1300.0	0.65252	120.90	27164.3	16294.2	20.78	12.50	2131
1400.0	0.60624	122.44	29242.0	17542.2	20.78	12.50	2210
1500.0	0.56609	123.87	31319.7	18790.1	20.78	12.50	2287

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

80 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
3.5	49.94486	6.77	194.0	31.7	10.01	8.83	539
4.0	49.54356	8.10	199.0	35.3	9.86	8.98	537
4.5	49.21197	9.25	203.8	39.1	9.69	8.94	536
5.0	48.91607	10.26	208.7	42.9	9.58	8.87	533
5.5	48.63608	11.18	213.4	46.8	9.56	8.82	531
6.0	48.35959	12.01	218.2	50.6	9.64	8.83	528
6.5	48.07844	12.79	223.1	54.5	9.81	8.89	526
7.0	47.78707	13.52	228.1	58.4	10.05	8.99	523
7.5	47.48165	14.23	233.2	62.4	10.37	9.13	520
8.0	47.15945	14.91	238.4	66.5	10.75	9.29	517
8.5	46.81856	15.57	243.9	70.8	11.18	9.48	514
9.0	46.45760	16.23	249.6	75.1	11.66	9.67	511
9.5	46.07564	16.87	255.6	79.7	12.19	9.88	508
10.0	45.67208	17.51	261.8	84.3	12.75	10.09	505
11.0	44.79903	18.78	275.2	94.2	13.96	10.51	498
12.0	43.83848	20.05	289.8	104.9	15.25	10.91	491
13.0	42.79399	21.32	305.7	116.3	16.60	11.28	484
14.0	41.67296	22.60	323.0	128.5	17.96	11.61	478
15.0	40.48696	23.89	341.6	141.4	19.28	11.89	471
16.0	39.25190	25.17	361.5	155.0	20.49	12.14	465
17.0	37.98732	26.45	382.5	169.1	21.56	12.34	460
18.0	36.71473	27.71	404.6	183.8	22.44	12.50	455
19.0	35.45524	28.94	427.3	198.7	23.11	12.63	452
20.0	34.22720	30.14	450.7	213.9	23.59	12.72	450
22.0	31.91663	32.41	498.4	244.5	24.04	12.86	448
24.0	29.84007	34.51	546.6	274.9	24.07	12.93	448
26.0	28.00030	36.43	594.6	305.1	23.90	12.96	451
28.0	26.37441	38.19	642.1	334.8	23.66	12.97	455
30.0	24.93277	39.81	689.2	364.1	23.41	12.97	459
32.0	23.64722	41.32	735.8	393.0	23.18	12.96	464
34.0	22.49363	42.71	781.9	421.6	22.97	12.95	470
36.0	21.45213	44.02	827.7	449.8	22.79	12.94	475
38.0	20.50651	45.25	873.1	477.8	22.63	12.92	481
40.0	19.64359	46.41	918.2	505.6	22.50	12.90	486
45.0	17.78157	49.04	1030.0	574.1	22.22	12.87	501
50.0	16.24866	51.37	1140.6	641.7	22.02	12.83	516
55.0	14.96311	53.46	1250.2	708.5	21.86	12.80	530
60.0	13.86879	55.36	1359.2	774.7	21.73	12.78	545
65.0	12.92567	57.09	1467.6	840.4	21.62	12.76	560
70.0	12.10428	58.69	1575.5	905.8	21.54	12.74	574
75.0	11.38237	60.17	1682.9	970.8	21.46	12.72	588
80.0	10.74283	61.56	1790.1	1035.5	21.39	12.70	602
85.0	10.17226	62.85	1896.9	1100.0	21.33	12.69	616
90.0	9.66002	64.07	2003.4	1164.3	21.28	12.68	629
95.0	9.19756	65.22	2109.7	1228.4	21.24	12.67	642
100.0	8.77792	66.31	2215.8	1292.3	21.20	12.66	655

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

80 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	8.04517	68.33	2427.5	1419.9	21.13	12.64	681
120.0	7.42660	70.16	2638.5	1547.0	21.08	12.63	705
130.0	6.89728	71.85	2849.1	1673.8	21.03	12.62	729
140.0	6.43908	73.40	3059.2	1800.3	21.00	12.61	752
150.0	6.03847	74.85	3269.1	1926.6	20.97	12.60	774
160.0	5.68517	76.20	3478.6	2052.8	20.94	12.59	796
170.0	5.37122	77.47	3687.9	2178.7	20.92	12.59	817
180.0	5.09035	78.67	3897.1	2304.6	20.90	12.58	838
190.0	4.83756	79.80	4106.0	2430.3	20.89	12.58	858
200.0	4.60883	80.87	4314.8	2556.0	20.88	12.57	878
210.0	4.40085	81.89	4523.5	2681.6	20.86	12.57	897
220.0	4.21091	82.86	4732.1	2807.1	20.85	12.56	916
230.0	4.03675	83.79	4940.6	2932.5	20.85	12.56	934
240.0	3.87648	84.67	5149.0	3057.9	20.84	12.56	953
250.0	3.72849	85.52	5357.4	3183.3	20.83	12.56	970
260.0	3.59141	86.34	5565.7	3308.6	20.83	12.55	988
270.0	3.46409	87.13	5773.9	3433.8	20.82	12.55	1005
280.0	3.34550	87.88	5982.1	3559.0	20.82	12.55	1022
290.0	3.23478	88.61	6190.2	3684.2	20.81	12.55	1038
300.0	3.13117	89.32	6398.3	3809.4	20.81	12.54	1055
310.0	3.03400	90.00	6606.4	3934.6	20.81	12.54	1071
320.0	2.94269	90.66	6814.4	4059.7	20.80	12.54	1087
330.0	2.85672	91.30	7022.4	4184.8	20.80	12.54	1102
340.0	2.77564	91.92	7230.4	4309.9	20.80	12.54	1118
350.0	2.69904	92.53	7438.3	4435.0	20.80	12.54	1133
360.0	2.62655	93.11	7646.3	4560.0	20.79	12.54	1148
370.0	2.55786	93.68	7854.2	4685.1	20.79	12.53	1163
380.0	2.49268	94.24	8062.1	4810.1	20.79	12.53	1178
390.0	2.43074	94.78	8270.0	4935.1	20.79	12.53	1192
400.0	2.37180	95.30	8477.9	5060.1	20.79	12.53	1206
420.0	2.26210	96.32	8893.6	5310.1	20.79	12.53	1234
440.0	2.16211	97.28	9309.3	5560.1	20.78	12.53	1262
460.0	2.07058	98.21	9724.9	5810.0	20.78	12.53	1289
480.0	1.98649	99.09	10140.5	6059.9	20.78	12.52	1315
500.0	1.90896	99.94	10556.1	6309.7	20.78	12.52	1341
550.0	1.73926	101.92	11595.0	6934.3	20.78	12.52	1403
600.0	1.59726	103.73	12633.9	7558.8	20.78	12.52	1463
650.0	1.47669	105.39	13672.6	8183.2	20.78	12.51	1521
700.0	1.37304	106.93	14711.4	8807.5	20.78	12.51	1576
750.0	1.28298	108.36	15750.1	9431.8	20.77	12.51	1630
800.0	1.20400	109.70	16788.8	10056.1	20.77	12.51	1681
850.0	1.13417	110.96	17827.6	10680.3	20.77	12.51	1732
900.0	1.07200	112.15	18866.3	11304.5	20.77	12.51	1781
950.0	1.01628	113.27	19905.0	11928.7	20.77	12.51	1828
1000.0	0.96607	114.34	20943.7	12552.8	20.77	12.51	1875
1100.0	0.87918	116.32	23021.2	13801.1	20.78	12.50	1964
1200.0	0.80663	118.13	25098.7	15049.2	20.78	12.50	2050
1300.0	0.74513	119.79	27176.3	16297.4	20.78	12.50	2132
1400.0	0.69234	121.33	29253.9	17545.5	20.78	12.50	2211
1500.0	0.64654	122.76	31331.5	18793.6	20.78	12.50	2288

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

90 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
3.5	50.90845	6.39	212.8	33.6	10.79	9.34	558
4.0	50.47701	7.80	218.0	37.4	10.32	9.33	556
4.5	50.13551	8.99	223.1	41.2	9.96	9.16	555
5.0	49.84102	10.03	228.0	45.0	9.71	9.00	554
5.5	49.56974	10.95	232.8	48.9	9.59	8.88	552
6.0	49.30726	11.78	237.6	52.7	9.58	8.83	550
6.5	49.04431	12.55	242.4	56.5	9.68	8.84	548
7.0	48.77473	13.28	247.3	60.3	9.86	8.91	545
7.5	48.49429	13.96	252.3	64.2	10.12	9.01	543
8.0	48.20007	14.63	257.4	68.2	10.44	9.16	540
8.5	47.89004	15.27	262.7	72.3	10.82	9.33	538
9.0	47.56278	15.90	268.3	76.5	11.25	9.51	535
9.5	47.21733	16.52	274.0	80.9	11.73	9.71	533
10.0	46.85306	17.14	280.0	85.4	12.23	9.91	530
11.0	46.06689	18.35	292.8	94.8	13.33	10.33	524
12.0	45.20389	19.56	306.7	104.9	14.52	10.73	518
13.0	44.26653	20.78	321.8	115.8	15.76	11.11	512
14.0	43.25992	21.99	338.2	127.4	17.02	11.45	506
15.0	42.19200	23.21	355.9	139.7	18.26	11.75	500
16.0	41.07362	24.42	374.7	152.7	19.44	12.02	494
17.0	39.91838	25.63	394.7	166.2	20.52	12.24	488
18.0	38.74198	26.83	415.7	180.3	21.47	12.42	483
19.0	37.56106	28.02	437.6	194.8	22.26	12.57	479
20.0	36.39168	29.17	460.2	209.6	22.87	12.69	476
22.0	34.14086	31.39	506.8	239.6	23.63	12.85	472
24.0	32.06461	33.46	554.3	269.9	23.89	12.94	471
26.0	30.19010	35.38	602.1	300.1	23.87	12.99	472
28.0	28.51263	37.14	649.7	329.9	23.70	13.01	474
30.0	27.01309	38.77	696.9	359.3	23.49	13.01	478
32.0	25.66864	40.28	743.7	388.4	23.27	13.01	482
34.0	24.45757	41.68	790.0	417.1	23.06	13.00	487
36.0	23.36095	42.99	835.9	445.5	22.87	12.98	492
38.0	22.36286	44.23	881.5	473.7	22.71	12.96	497
40.0	21.45007	45.39	926.7	501.6	22.56	12.95	502
45.0	19.47373	48.03	1038.8	570.5	22.27	12.91	515
50.0	17.83915	50.36	1149.5	638.3	22.05	12.87	529
55.0	16.46240	52.45	1259.4	705.4	21.89	12.84	543
60.0	15.28581	54.35	1368.5	771.9	21.76	12.81	557
65.0	14.26816	56.09	1477.0	837.8	21.65	12.78	571
70.0	13.37905	57.69	1585.0	903.4	21.56	12.76	585
75.0	12.59544	59.18	1692.6	968.6	21.48	12.74	598
80.0	11.89954	60.56	1799.8	1033.5	21.42	12.73	612
85.0	11.27736	61.86	1906.8	1098.1	21.36	12.71	625
90.0	10.71773	63.08	2013.4	1162.6	21.31	12.70	638
95.0	10.21165	64.23	2119.9	1226.8	21.26	12.69	651
100.0	9.75174	65.32	2226.1	1290.9	21.22	12.68	664

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

90 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	8.94719	67.34	2438.0	1418.7	21.16	12.66	689
120.0	8.26657	69.17	2649.3	1546.1	21.10	12.65	713
130.0	7.68314	70.86	2860.0	1673.1	21.05	12.63	736
140.0	7.17737	72.42	3070.4	1799.8	21.02	12.62	759
150.0	6.73463	73.87	3280.4	1926.3	20.99	12.62	781
160.0	6.34376	75.22	3490.1	2052.5	20.96	12.61	803
170.0	5.99610	76.49	3699.6	2178.7	20.94	12.60	824
180.0	5.68482	77.69	3908.8	2304.6	20.92	12.59	844
190.0	5.40446	78.82	4117.9	2430.5	20.90	12.59	864
200.0	5.15061	79.89	4326.8	2556.3	20.89	12.58	883
210.0	4.91966	80.91	4535.6	2681.9	20.87	12.58	903
220.0	4.70862	81.88	4744.3	2807.5	20.86	12.58	921
230.0	4.51502	82.81	4952.9	2933.1	20.85	12.57	940
240.0	4.33678	83.69	5161.4	3058.5	20.85	12.57	958
250.0	4.17212	84.55	5369.8	3184.0	20.84	12.56	975
260.0	4.01955	85.36	5578.1	3309.3	20.83	12.56	993
270.0	3.87778	86.15	5786.4	3434.7	20.83	12.56	1010
280.0	3.74569	86.91	5994.6	3560.0	20.82	12.56	1026
290.0	3.62232	87.64	6202.8	3685.2	20.82	12.55	1043
300.0	3.50684	88.34	6410.9	3810.5	20.81	12.55	1059
310.0	3.39851	89.02	6619.0	3935.7	20.81	12.55	1075
320.0	3.29668	89.69	6827.1	4060.8	20.81	12.55	1091
330.0	3.20079	90.33	7035.1	4186.0	20.80	12.55	1107
340.0	3.11033	90.95	7243.1	4311.1	20.80	12.55	1122
350.0	3.02484	91.55	7451.1	4436.3	20.80	12.54	1137
360.0	2.94393	92.13	7659.1	4561.4	20.80	12.54	1152
370.0	2.86725	92.70	7867.0	4686.4	20.79	12.54	1167
380.0	2.79446	93.26	8074.9	4811.5	20.79	12.54	1181
390.0	2.72527	93.80	8282.8	4936.6	20.79	12.54	1196
400.0	2.65943	94.33	8490.7	5061.6	20.79	12.54	1210
420.0	2.53687	95.34	8906.5	5311.7	20.79	12.54	1238
440.0	2.42510	96.31	9322.2	5561.7	20.78	12.53	1265
460.0	2.32277	97.23	9737.8	5811.7	20.78	12.53	1292
480.0	2.22873	98.11	10153.4	6061.6	20.78	12.53	1318
500.0	2.14200	98.96	10569.0	6311.5	20.78	12.53	1344
550.0	1.95210	100.94	11607.9	6936.3	20.78	12.52	1406
600.0	1.79312	102.75	12646.7	7560.9	20.78	12.52	1466
650.0	1.65808	104.41	13685.4	8185.4	20.77	12.52	1523
700.0	1.54194	105.95	14724.1	8809.8	20.77	12.52	1578
750.0	1.44100	107.39	15762.8	9434.2	20.77	12.52	1632
800.0	1.35246	108.73	16801.5	10058.5	20.77	12.51	1684
850.0	1.27416	109.99	17840.1	10682.9	20.77	12.51	1734
900.0	1.20443	111.17	18878.8	11307.1	20.77	12.51	1783
950.0	1.14193	112.30	19917.4	11931.4	20.77	12.51	1830
1000.0	1.08559	113.36	20956.1	12555.6	20.77	12.51	1876
1100.0	0.98809	115.34	23033.5	13804.0	20.77	12.51	1966
1200.0	0.90664	117.15	25110.9	15052.3	20.77	12.51	2051
1300.0	0.83760	118.81	27188.3	16300.6	20.77	12.51	2133
1400.0	0.77832	120.35	29265.8	17548.9	20.78	12.50	2212
1500.0	0.72687	121.79	31343.3	18797.1	20.78	12.50	2289

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

100 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
4.0	51.35942	7.50	236.7	39.4	10.89	9.74	573
4.5	51.80149	8.74	242.0	43.3	10.30	9.43	573
5.0	50.70308	9.81	247.0	47.2	9.90	9.16	572
5.5	50.43556	10.74	251.9	51.0	9.66	8.96	571
6.0	50.18214	11.57	256.7	54.8	9.57	8.85	570
6.5	49.93226	12.34	261.5	58.6	9.59	8.81	568
7.0	49.67902	13.05	266.3	62.4	9.71	8.84	566
7.5	49.41775	13.73	271.2	66.2	9.92	8.92	564
8.0	49.14527	14.38	276.3	70.1	10.20	9.04	562
8.5	48.85935	15.01	281.4	74.1	10.53	9.19	560
9.0	48.55850	15.62	286.8	78.1	10.92	9.36	558
9.5	48.24168	16.22	292.4	82.3	11.34	9.55	555
10.0	47.90823	16.81	298.2	86.6	11.81	9.75	553
11.0	47.19013	17.99	310.5	95.7	12.82	10.16	548
12.0	46.40347	19.15	323.8	105.5	13.92	10.56	543
13.0	45.55005	20.31	338.3	115.9	15.08	10.95	538
14.0	44.63376	21.47	354.0	127.0	16.25	11.30	532
15.0	43.66049	22.63	370.8	138.7	17.42	11.62	526
16.0	42.63817	23.79	388.8	151.2	18.56	11.90	520
17.0	41.57672	24.95	407.9	164.2	19.62	12.14	515
18.0	40.48781	26.10	428.0	177.8	20.59	12.34	510
19.0	39.38426	27.23	449.0	191.8	21.43	12.51	505
20.0	38.27926	28.35	470.8	206.1	22.14	12.64	501
22.0	36.11338	30.51	516.2	235.6	23.13	12.84	495
24.0	34.06844	32.55	563.0	265.6	23.61	12.95	493
26.0	32.18674	34.45	610.4	295.6	23.75	13.02	492
28.0	30.47935	36.21	657.9	325.4	23.69	13.04	494
30.0	28.93843	37.84	705.1	355.0	23.53	13.05	496
32.0	27.54791	39.35	752.0	384.2	23.34	13.05	500
34.0	26.28969	40.76	798.5	413.0	23.14	13.04	504
36.0	25.14564	42.07	844.6	441.6	22.95	13.03	508
38.0	24.10366	43.31	890.3	469.9	22.78	13.01	513
40.0	23.14779	44.47	935.7	497.9	22.63	12.99	517
45.0	21.07182	47.12	1048.0	567.1	22.32	12.95	530
50.0	19.34793	49.46	1159.0	635.3	22.09	12.91	543
55.0	17.89050	51.56	1269.0	702.6	21.91	12.87	556
60.0	16.64059	53.46	1378.2	769.3	21.78	12.84	569
65.0	15.55601	55.19	1486.8	835.4	21.67	12.81	583
70.0	14.60560	56.80	1594.9	901.1	21.58	12.79	596
75.0	13.76575	58.28	1702.6	966.5	21.50	12.77	609
80.0	13.01812	59.67	1809.9	1031.6	21.44	12.75	622
85.0	12.34826	60.97	1917.0	1096.4	21.38	12.74	635
90.0	11.74462	62.19	2023.7	1161.0	21.33	12.72	648
95.0	11.19781	63.34	2130.2	1225.4	21.28	12.71	660
100.0	10.70015	64.43	2236.6	1289.6	21.24	12.70	673

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

100 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	9.82790	66.45	2448.6	1417.6	21.17	12.68	697
120.0	9.08838	68.29	2660.1	1545.2	21.12	12.66	721
130.0	8.45334	69.98	2871.0	1672.4	21.07	12.65	744
140.0	7.90199	71.54	3081.6	1799.3	21.03	12.64	766
150.0	7.41875	72.99	3291.7	1925.9	21.00	12.63	788
160.0	6.99166	74.34	3501.6	2052.3	20.97	12.62	809
170.0	6.61142	75.61	3711.2	2178.6	20.95	12.61	830
180.0	6.27069	76.81	3920.6	2304.7	20.93	12.61	850
190.0	5.96357	77.94	4129.8	2430.6	20.91	12.60	870
200.0	5.68531	79.01	4338.8	2556.5	20.90	12.59	889
210.0	5.43199	80.03	4547.7	2682.3	20.88	12.59	908
220.0	5.20040	81.01	4756.4	2808.0	20.87	12.59	927
230.0	4.98783	81.93	4965.1	2933.6	20.86	12.58	945
240.0	4.79203	82.82	5173.7	3059.1	20.85	12.58	963
250.0	4.61108	83.67	5382.1	3184.6	20.84	12.57	980
260.0	4.44335	84.49	5590.5	3310.1	20.84	12.57	997
270.0	4.28743	85.28	5798.9	3435.5	20.83	12.57	1014
280.0	4.14211	86.03	6007.1	3560.9	20.83	12.57	1031
290.0	4.00634	86.76	6215.4	3686.2	20.82	12.56	1048
300.0	3.87921	87.47	6423.5	3811.5	20.82	12.56	1064
310.0	3.75992	88.15	6631.7	3936.7	20.81	12.56	1080
320.0	3.64776	88.81	6839.8	4062.0	20.81	12.56	1095
330.0	3.54211	89.45	7047.8	4187.2	20.80	12.55	1111
340.0	3.44242	90.07	7255.9	4312.4	20.80	12.55	1126
350.0	3.34820	90.68	7463.9	4437.5	20.80	12.55	1141
360.0	3.25900	91.26	7671.8	4562.7	20.80	12.55	1156
370.0	3.17443	91.83	7879.8	4687.8	20.79	12.55	1171
380.0	3.09415	92.39	8087.7	4812.9	20.79	12.55	1185
390.0	3.01783	92.93	8295.6	4938.0	20.79	12.55	1199
400.0	2.94519	93.45	8503.5	5063.1	20.79	12.54	1214
420.0	2.80992	94.47	8919.3	5313.2	20.79	12.54	1241
440.0	2.68654	95.43	9335.0	5563.3	20.78	12.54	1269
460.0	2.57354	96.36	9750.6	5813.4	20.78	12.54	1295
480.0	2.46966	97.24	10166.3	6063.4	20.78	12.54	1321
500.0	2.37384	98.09	10581.9	6313.3	20.78	12.53	1347
550.0	2.16395	100.07	11620.7	6938.2	20.78	12.53	1409
600.0	1.98815	101.88	12659.5	7562.9	20.77	12.53	1469
650.0	1.83877	103.54	13698.2	8187.5	20.77	12.53	1526
700.0	1.71025	105.08	14736.8	8812.1	20.77	12.52	1581
750.0	1.59851	106.51	15775.5	9436.6	20.77	12.52	1634
800.0	1.50047	107.85	16814.1	10061.0	20.77	12.52	1686
850.0	1.41376	109.11	17852.7	10685.4	20.77	12.52	1736
900.0	1.33651	110.30	18891.3	11309.8	20.77	12.52	1784
950.0	1.26727	111.42	19929.9	11934.1	20.77	12.52	1832
1000.0	1.20484	112.49	20968.5	12558.4	20.77	12.51	1878
1100.0	1.09677	114.47	23045.7	13807.0	20.77	12.51	1967
1200.0	1.00648	116.28	25123.0	15055.4	20.77	12.51	2053
1300.0	0.92991	117.94	27200.3	16303.9	20.77	12.51	2135
1400.0	0.86417	119.48	29277.7	17552.2	20.77	12.51	2214
1500.0	0.80710	120.91	31355.1	18800.6	20.77	12.51	2290

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

150 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
4.5	54.80010	7.40	331.6	54.3	13.30	11.56	643
5.0	54.41282	8.71	337.9	58.5	11.69	10.53	645
5.5	54.10898	9.77	343.4	62.5	10.69	9.81	647
6.0	53.85115	10.67	348.6	66.4	10.06	9.30	648
6.5	53.61845	11.46	353.5	70.1	9.68	8.97	649
7.0	53.39827	12.17	358.3	73.7	9.49	8.77	649
7.5	53.18252	12.82	363.1	77.3	9.44	8.68	649
8.0	52.96591	13.43	367.8	80.8	9.50	8.66	649
8.5	52.74483	14.01	372.6	84.4	9.64	8.71	649
9.0	52.51684	14.57	377.4	88.0	9.86	8.80	648
9.5	52.28029	15.11	382.4	91.7	10.13	8.93	648
10.0	52.03406	15.64	387.6	95.5	10.44	9.08	647
11.0	51.50992	16.67	398.4	103.3	11.18	9.44	646
12.0	50.94163	17.68	410.0	111.6	12.02	9.83	644
13.0	50.32908	18.67	422.4	120.4	12.92	10.23	641
14.0	49.67373	19.66	435.8	129.8	13.86	10.62	638
15.0	48.97807	20.65	450.2	139.8	14.80	10.98	635
16.0	48.24534	21.64	465.4	150.4	15.75	11.32	631
17.0	47.47933	22.62	481.6	161.5	16.67	11.62	627
18.0	46.68435	23.60	498.8	173.2	17.56	11.89	622
19.0	45.86511	24.57	516.7	185.4	18.40	12.13	618
20.0	45.02668	25.54	535.5	198.0	19.18	12.34	613
22.0	43.31363	27.43	575.3	224.4	20.56	12.67	605
24.0	41.58841	29.27	617.6	252.1	21.63	12.90	597
26.0	39.89115	31.03	661.6	280.6	22.39	13.05	592
28.0	38.25424	32.71	706.9	309.6	22.87	13.15	588
30.0	36.69971	34.30	753.0	338.8	23.13	13.20	586
32.0	35.23937	35.79	799.3	368.0	23.23	13.23	585
34.0	33.87678	37.20	845.8	397.2	23.22	13.24	585
36.0	32.60991	38.53	892.2	426.1	23.15	13.23	586
38.0	31.43346	39.78	938.4	454.9	23.04	13.22	588
40.0	30.34058	40.95	984.3	483.4	22.91	13.20	591
45.0	27.92655	43.63	1098.0	553.8	22.58	13.14	599
50.0	25.88541	46.00	1210.2	623.0	22.29	13.09	608
55.0	24.13501	48.11	1321.1	691.3	22.07	13.04	618
60.0	22.61462	50.02	1431.0	758.9	21.89	12.99	629
65.0	21.27956	51.77	1540.1	825.8	21.75	12.95	639
70.0	20.09644	53.38	1648.5	892.2	21.65	12.92	650
75.0	19.03982	54.87	1756.5	958.3	21.56	12.89	661
80.0	18.08989	56.26	1864.1	1023.9	21.48	12.86	672
85.0	17.23095	57.56	1971.4	1089.3	21.42	12.84	683
90.0	16.45036	58.78	2078.4	1154.5	21.37	12.82	694
95.0	15.73776	59.93	2185.1	1219.4	21.33	12.80	705
100.0	15.08459	61.03	2291.7	1284.1	21.29	12.79	716

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

150 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	13.92902	63.05	2504.2	1413.0	21.22	12.76	738
120.0	12.93854	64.90	2716.2	1541.4	21.17	12.74	760
130.0	12.08015	66.59	2927.6	1669.4	21.12	12.72	781
140.0	11.32909	68.15	3138.6	1797.0	21.08	12.71	801
150.0	10.66641	69.61	3349.3	1924.3	21.05	12.69	822
160.0	10.07738	70.96	3559.6	2051.4	21.02	12.68	842
170.0	9.55035	72.24	3769.7	2178.2	20.99	12.67	861
180.0	9.07600	73.44	3979.5	2304.9	20.97	12.66	880
190.0	8.64679	74.57	4189.1	2431.4	20.95	12.65	899
200.0	8.25656	75.65	4398.6	2557.7	20.93	12.65	917
210.0	7.90021	76.67	4607.8	2683.9	20.92	12.64	936
220.0	7.57350	77.64	4816.9	2810.0	20.90	12.63	953
230.0	7.27287	78.57	5025.9	2936.1	20.89	12.63	971
240.0	6.99530	79.46	5234.8	3062.0	20.88	12.62	988
250.0	6.73823	80.31	5443.5	3187.8	20.87	12.62	1005
260.0	6.49945	81.13	5652.2	3313.6	20.86	12.61	1022
270.0	6.27709	81.91	5860.7	3439.4	20.85	12.61	1038
280.0	6.06949	82.67	6069.2	3565.0	20.85	12.61	1054
290.0	5.87522	83.40	6277.6	3690.7	20.84	12.60	1070
300.0	5.69305	84.11	6486.0	3816.2	20.83	12.60	1086
310.0	5.52186	84.79	6694.3	3941.8	20.83	12.60	1101
320.0	5.36069	85.45	6902.5	4067.2	20.82	12.60	1117
330.0	5.20869	86.10	7110.7	4192.7	20.82	12.59	1132
340.0	5.06509	86.72	7318.9	4318.1	20.81	12.59	1146
350.0	4.92921	87.32	7527.0	4443.5	20.81	12.59	1161
360.0	4.80045	87.91	7735.1	4568.9	20.81	12.59	1176
370.0	4.67825	88.48	7943.1	4694.2	20.80	12.58	1190
380.0	4.56213	89.03	8151.2	4819.6	20.80	12.58	1204
390.0	4.45164	89.57	8359.1	4944.9	20.80	12.58	1218
400.0	4.34638	90.10	8567.1	5070.1	20.80	12.58	1232
420.0	4.15014	91.11	8983.0	5320.6	20.79	12.57	1259
440.0	3.97087	92.08	9398.7	5571.1	20.79	12.57	1286
460.0	3.80645	93.00	9814.4	5821.4	20.78	12.57	1312
480.0	3.65512	93.89	10230.1	6071.8	20.78	12.57	1338
500.0	3.51536	94.74	10645.7	6322.1	20.78	12.56	1363
550.0	3.20865	96.72	11684.5	6947.6	20.77	12.56	1424
600.0	2.95115	98.52	12723.2	7572.9	20.77	12.55	1482
650.0	2.73190	100.19	13761.7	8198.1	20.77	12.55	1539
700.0	2.54296	101.73	14800.2	8823.2	20.77	12.55	1593
750.0	2.37845	103.16	15838.6	9448.2	20.77	12.54	1646
800.0	2.23392	104.50	16876.9	10073.1	20.77	12.54	1697
850.0	2.10593	105.76	17915.3	10698.0	20.77	12.54	1746
900.0	1.99181	106.94	18953.6	11322.8	20.77	12.54	1794
950.0	1.88940	108.07	19991.9	11947.5	20.77	12.54	1841
1000.0	1.79700	109.13	21030.3	12572.2	20.77	12.53	1887
1100.0	1.63688	111.11	23106.9	13821.5	20.77	12.53	1976
1200.0	1.50294	112.92	25183.6	15070.7	20.77	12.53	2060
1300.0	1.38924	114.58	27260.4	16319.8	20.77	12.53	2142
1400.0	1.29153	116.12	29337.2	17568.8	20.77	12.53	2220
1500.0	1.20664	117.55	31414.1	18817.8	20.77	12.52	2296

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

200 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
5.5	57.19092	8.74	428.8	74.4	13.02	11.44	701
6.0	56.86432	9.80	434.9	78.5	11.49	10.35	705
6.5	56.59533	10.68	440.4	82.3	10.53	9.61	708
7.0	56.35971	11.44	445.5	85.9	9.92	9.10	711
7.5	56.14304	12.11	450.3	89.4	9.56	8.77	713
8.0	55.93622	12.72	455.1	92.8	9.38	8.58	715
8.5	55.73329	13.29	459.7	96.1	9.33	8.49	716
9.0	55.53022	13.82	464.4	99.5	9.39	8.48	717
9.5	55.32428	14.33	469.1	102.8	9.52	8.53	718
10.0	55.11356	14.83	473.9	106.2	9.72	8.62	719
11.0	54.67310	15.78	483.9	113.3	10.27	8.90	720
12.0	54.20292	16.70	494.5	120.6	10.95	9.25	721
13.0	53.70092	17.61	505.9	128.5	11.71	9.64	721
14.0	53.16708	18.50	518.0	136.8	12.53	10.04	720
15.0	52.60257	19.40	530.9	145.7	13.36	10.43	718
16.0	52.00928	20.29	544.7	155.0	14.20	10.80	716
17.0	51.38953	21.17	559.3	165.0	15.03	11.15	714
18.0	50.74592	22.05	574.8	175.4	15.85	11.46	711
19.0	50.08121	22.93	591.0	186.3	16.63	11.75	707
20.0	49.39830	23.80	608.0	197.8	17.37	12.01	704
22.0	47.98984	25.52	644.1	221.9	18.73	12.44	696
24.0	46.54474	27.21	682.8	247.4	19.90	12.77	688
26.0	45.08683	28.84	723.6	274.1	20.86	13.00	681
28.0	43.63831	30.41	766.1	301.7	21.60	13.17	675
30.0	42.21836	31.92	809.9	329.9	22.15	13.28	669
32.0	40.84227	33.37	854.6	358.4	22.53	13.35	665
34.0	39.52091	34.74	899.9	387.1	22.77	13.39	662
36.0	38.26100	36.04	945.6	415.9	22.89	13.40	661
38.0	37.06565	37.28	991.4	444.7	22.93	13.40	660
40.0	35.93523	38.46	1037.3	473.3	22.92	13.39	660
45.0	33.38008	41.15	1151.5	544.3	22.74	13.34	663
50.0	31.16952	43.53	1264.5	614.4	22.49	13.28	669
55.0	29.24551	45.66	1376.4	683.4	22.25	13.21	676
60.0	27.55635	47.59	1487.1	751.6	22.04	13.15	684
65.0	26.06021	49.35	1596.8	819.2	21.87	13.10	693
70.0	24.72422	50.96	1705.8	886.2	21.73	13.05	702
75.0	23.52262	52.46	1814.2	952.7	21.62	13.01	711
80.0	22.43511	53.85	1922.1	1018.8	21.53	12.98	721
85.0	21.44545	55.16	2029.6	1084.6	21.46	12.95	730
90.0	20.54053	56.38	2136.7	1150.1	21.40	12.92	740
95.0	19.70957	57.54	2243.6	1215.4	21.35	12.90	750
100.0	18.94366	58.63	2350.2	1280.4	21.30	12.88	760

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

200 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	17.57818	60.66	2562.9	1410.0	21.23	12.84	779
120.0	16.39672	62.50	2774.9	1539.0	21.18	12.81	798
130.0	15.36426	64.20	2986.5	1667.5	21.14	12.79	818
140.0	14.45428	65.76	3197.7	1795.6	21.10	12.77	837
150.0	13.64621	67.21	3408.5	1923.4	21.07	12.75	856
160.0	12.92387	68.57	3619.0	2050.9	21.04	12.74	874
170.0	12.27434	69.85	3829.3	2178.2	21.01	12.72	893
180.0	11.68714	71.05	4039.3	2305.3	20.99	12.71	911
190.0	11.15374	72.18	4249.1	2432.2	20.97	12.70	928
200.0	10.66705	73.26	4458.8	2558.9	20.96	12.69	946
210.0	10.22121	74.28	4668.2	2685.5	20.94	12.69	963
220.0	9.81127	75.25	4877.6	2812.0	20.92	12.68	980
230.0	9.43307	76.18	5086.7	2938.4	20.91	12.67	997
240.0	9.08305	77.07	5295.8	3064.7	20.90	12.67	1014
250.0	8.75817	77.93	5504.7	3190.8	20.89	12.66	1030
260.0	8.45581	78.75	5713.6	3316.9	20.88	12.66	1046
270.0	8.17370	79.53	5922.3	3442.9	20.87	12.65	1062
280.0	7.90986	80.29	6131.0	3568.9	20.86	12.65	1077
290.0	7.66259	81.02	6339.5	3694.8	20.85	12.64	1093
300.0	7.43035	81.73	6548.0	3820.6	20.85	12.64	1108
310.0	7.21181	82.41	6756.5	3946.4	20.84	12.63	1123
320.0	7.00580	83.08	6964.8	4072.2	20.83	12.63	1138
330.0	6.81126	83.72	7173.1	4197.8	20.83	12.63	1152
340.0	6.62725	84.34	7381.4	4323.5	20.82	12.62	1167
350.0	6.45296	84.94	7589.6	4449.1	20.82	12.62	1181
360.0	6.28761	85.53	7797.8	4574.7	20.82	12.62	1195
370.0	6.13054	86.10	8005.9	4700.3	20.81	12.62	1209
380.0	5.98114	86.65	8214.0	4825.8	20.81	12.61	1223
390.0	5.83886	87.19	8422.1	4951.3	20.80	12.61	1237
400.0	5.70321	87.72	8630.1	5076.7	20.80	12.61	1250
420.0	5.44999	88.74	9046.1	5327.6	20.80	12.61	1277
440.0	5.21833	89.70	9461.9	5578.4	20.79	12.60	1303
460.0	5.00557	90.63	9877.7	5829.1	20.79	12.60	1329
480.0	4.80950	91.51	10293.4	6079.7	20.78	12.60	1354
500.0	4.62821	92.36	10709.0	6330.3	20.78	12.59	1379
550.0	4.22965	94.34	11747.9	6956.6	20.77	12.59	1439
600.0	3.89429	96.15	12786.5	7582.6	20.77	12.58	1496
650.0	3.60819	97.81	13824.9	8208.4	20.77	12.58	1552
700.0	3.36123	99.35	14863.2	8834.0	20.77	12.57	1605
750.0	3.14589	100.78	15901.4	9459.5	20.76	12.57	1657
800.0	2.95645	102.12	16939.6	10084.9	20.76	12.56	1708
850.0	2.78852	103.38	17977.7	10710.2	20.76	12.56	1757
900.0	2.63862	104.57	19015.8	11335.4	20.76	12.56	1804
950.0	2.50400	105.69	20053.9	11960.6	20.76	12.56	1851
1000.0	2.38244	106.75	21091.9	12585.7	20.76	12.56	1896
1100.0	2.17155	108.73	23168.1	13835.8	20.76	12.55	1984
1200.0	1.99493	110.54	25244.3	15085.7	20.76	12.55	2068
1300.0	1.84484	112.20	27320.5	16335.5	20.76	12.55	2148
1400.0	1.71574	113.74	29396.8	17585.2	20.76	12.54	2226
1500.0	1.60351	115.17	31473.2	18834.9	20.76	12.54	2302

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

300 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
7.0	61.32326	9.86	606.5	110.8	13.10	11.15	798
7.5	61.00840	10.70	612.6	114.4	11.58	10.08	805
8.0	60.74063	11.42	618.2	117.7	10.60	9.34	810
8.5	60.50225	12.04	623.3	120.9	9.97	8.83	815
9.0	60.28221	12.60	628.2	123.9	9.59	8.51	819
9.5	60.07332	13.11	632.9	126.9	9.38	8.32	823
10.0	59.87071	13.59	637.6	129.8	9.31	8.22	826
11.0	59.47183	14.48	646.9	135.8	9.45	8.25	832
12.0	59.06894	15.32	656.6	141.9	9.84	8.46	837
13.0	58.65379	16.13	666.7	148.4	10.39	8.78	841
14.0	58.22251	16.92	677.4	155.3	11.04	9.15	844
15.0	57.77361	17.70	688.8	162.6	11.74	9.55	845
16.0	57.30694	18.49	700.9	170.4	12.46	9.95	846
17.0	56.82317	19.26	713.7	178.7	13.20	10.34	846
18.0	56.32338	20.04	727.3	187.5	13.93	10.71	846
19.0	55.80892	20.81	741.5	196.9	14.64	11.07	844
20.0	55.28126	21.58	756.5	206.6	15.33	11.39	843
22.0	54.19245	23.10	788.5	227.6	16.62	11.97	838
24.0	53.06917	24.60	822.9	250.1	17.77	12.44	832
26.0	51.92314	26.06	859.5	274.1	18.78	12.81	825
28.0	50.76530	27.49	897.9	299.1	19.64	13.10	819
30.0	49.60564	28.87	938.0	325.2	20.36	13.31	812
32.0	48.45308	30.20	979.3	351.9	20.95	13.47	806
34.0	47.31540	31.49	1021.7	379.2	21.43	13.58	800
36.0	46.19915	32.72	1064.9	406.9	21.80	13.66	795
38.0	45.10961	33.91	1108.8	434.9	22.07	13.70	790
40.0	44.05085	35.04	1153.2	463.1	22.28	13.73	787
45.0	41.55502	37.69	1265.3	533.8	22.52	13.72	781
50.0	39.28652	40.06	1378.0	604.2	22.53	13.66	779
55.0	37.23915	42.20	1490.4	674.1	22.42	13.58	780
60.0	35.39385	44.15	1602.1	743.3	22.26	13.50	784
65.0	33.72733	45.92	1713.0	811.7	22.10	13.42	789
70.0	32.21672	47.55	1823.1	879.6	21.94	13.35	794
75.0	30.84142	49.06	1932.5	946.9	21.81	13.29	801
80.0	29.58370	50.47	2041.2	1013.7	21.69	13.23	808
85.0	28.42851	51.78	2149.4	1080.1	21.58	13.18	816
90.0	27.36323	53.01	2257.1	1146.2	21.50	13.14	823
95.0	26.37722	54.17	2364.4	1211.9	21.42	13.10	831
100.0	25.46151	55.27	2471.3	1277.4	21.36	13.06	839

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

300 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	23.81168	57.30	2684.4	1407.8	21.27	13.00	856
120.0	22.36507	59.15	2896.7	1537.5	21.20	12.96	872
130.0	21.08531	60.84	3108.4	1666.7	21.14	12.92	889
140.0	19.94457	62.41	3319.6	1795.5	21.10	12.89	905
150.0	18.92111	63.86	3530.5	1923.9	21.07	12.87	922
160.0	17.99759	65.22	3741.0	2052.0	21.04	12.84	938
170.0	17.16000	66.49	3951.3	2179.9	21.02	12.82	955
180.0	16.39687	67.70	4161.4	2307.5	21.00	12.81	971
190.0	15.69871	68.83	4371.3	2435.0	20.98	12.79	987
200.0	15.05757	69.91	4581.1	2562.3	20.97	12.78	1003
210.0	14.46674	70.93	4790.7	2689.4	20.95	12.77	1018
220.0	13.92056	71.90	5000.1	2816.4	20.94	12.76	1034
230.0	13.41414	72.83	5209.4	2943.3	20.93	12.75	1049
240.0	12.94332	73.72	5418.7	3070.1	20.92	12.74	1065
250.0	12.50447	74.58	5627.8	3196.8	20.91	12.74	1080
260.0	12.09444	75.40	5836.8	3323.3	20.90	12.73	1095
270.0	11.71049	76.19	6045.7	3449.8	20.89	12.72	1109
280.0	11.35021	76.94	6254.5	3576.3	20.88	12.72	1124
290.0	11.01148	77.68	6463.2	3702.6	20.87	12.71	1138
300.0	10.69242	78.38	6671.9	3828.9	20.86	12.71	1153
310.0	10.39136	79.07	6880.5	3955.1	20.86	12.70	1167
320.0	10.10683	79.73	7089.0	4081.3	20.85	12.70	1181
330.0	9.83749	80.37	7297.5	4207.4	20.84	12.69	1194
340.0	9.58216	80.99	7505.9	4333.5	20.84	12.69	1208
350.0	9.33977	81.60	7714.2	4459.5	20.83	12.69	1222
360.0	9.10937	82.19	7922.5	4585.5	20.83	12.68	1235
370.0	8.89008	82.76	8130.8	4711.4	20.82	12.68	1248
380.0	8.68112	83.31	8339.0	4837.3	20.82	12.68	1262
390.0	8.48177	83.85	8547.1	4963.2	20.81	12.67	1275
400.0	8.29138	84.38	8755.3	5089.0	20.81	12.67	1288
420.0	7.93519	85.39	9171.4	5340.6	20.80	12.66	1313
440.0	7.60837	86.36	9587.4	5592.0	20.80	12.66	1338
460.0	7.30743	87.29	10003.3	5843.4	20.79	12.65	1363
480.0	7.02941	88.17	10419.1	6094.6	20.79	12.65	1387
500.0	6.77179	89.02	10834.8	6345.8	20.78	12.65	1411
550.0	6.20344	91.00	11873.7	6973.5	20.77	12.64	1468
600.0	5.72311	92.81	12912.3	7600.8	20.77	12.63	1524
650.0	5.31181	94.47	13950.5	8227.8	20.76	12.62	1578
700.0	4.95563	96.01	14988.6	8854.5	20.76	12.62	1630
750.0	4.64418	97.44	16026.5	9481.1	20.76	12.61	1681
800.0	4.36953	98.78	17064.4	10107.5	20.76	12.61	1730
850.0	4.12552	100.04	18102.1	10733.7	20.75	12.60	1778
900.0	3.90729	101.22	19139.8	11359.9	20.75	12.60	1825
950.0	3.71096	102.35	20177.4	11985.9	20.75	12.60	1870
1000.0	3.53339	103.41	21215.1	12611.9	20.75	12.59	1915
1100.0	3.22471	105.39	23290.3	13863.6	20.75	12.59	2001
1200.0	2.96556	107.19	25365.5	15115.1	20.75	12.59	2083
1300.0	2.74491	108.86	27440.8	16366.3	20.75	12.58	2163
1400.0	2.55477	110.39	29516.1	17617.4	20.75	12.58	2239
1500.0	2.38923	111.82	31591.5	18868.4	20.75	12.58	2314

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

400 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
8.0	64.95686	9.79	766.4	142.4	14.84	11.67	879
8.5	64.58329	10.62	773.2	145.7	12.82	10.42	887
9.0	64.26984	11.32	779.3	148.7	11.51	9.55	895
9.5	63.99521	11.91	784.8	151.5	10.66	8.95	902
10.0	63.74637	12.45	790.0	154.2	10.11	8.54	908
11.0	63.29487	13.38	799.8	159.5	9.61	8.15	918
12.0	62.87478	14.22	809.4	164.8	9.60	8.11	927
13.0	62.46594	14.99	819.1	170.3	9.88	8.27	934
14.0	62.05775	15.74	829.2	176.1	10.34	8.56	939
15.0	61.64461	16.47	839.9	182.4	10.91	8.92	943
16.0	61.22366	17.20	851.1	189.1	11.54	9.31	946
17.0	60.79364	17.92	863.0	196.3	12.21	9.71	948
18.0	60.35423	18.64	875.5	203.9	12.88	10.12	950
19.0	59.90565	19.35	888.7	212.1	13.55	10.50	950
20.0	59.44845	20.06	902.6	220.8	14.20	10.88	950
22.0	58.51128	21.47	932.3	239.5	15.45	11.55	948
24.0	57.54953	22.87	964.3	260.0	16.58	12.12	944
26.0	56.57022	24.23	998.5	282.0	17.58	12.59	938
28.0	55.58004	25.57	1034.5	305.3	18.45	12.98	933
30.0	54.58504	26.87	1072.2	329.7	19.20	13.28	926
32.0	53.59064	28.13	1111.3	355.0	19.85	13.52	920
34.0	52.60160	29.35	1151.5	381.0	20.39	13.70	913
36.0	51.62206	30.53	1192.7	407.6	20.83	13.83	907
38.0	50.65557	31.66	1234.8	434.7	21.20	13.93	901
40.0	49.70513	32.76	1277.5	462.1	21.50	13.99	896
45.0	47.41416	35.32	1386.3	531.5	21.99	14.05	885
50.0	45.26335	37.65	1496.9	601.5	22.22	14.03	878
55.0	43.26328	39.78	1608.2	671.4	22.28	13.95	874
60.0	41.41371	41.71	1719.6	740.9	22.25	13.86	872
65.0	39.70756	43.49	1830.6	809.9	22.16	13.77	873
70.0	38.13425	45.13	1941.1	878.3	22.05	13.68	876
75.0	36.68186	46.64	2051.1	946.1	21.93	13.59	879
80.0	35.33850	48.06	2160.4	1013.5	21.81	13.51	884
85.0	34.09299	49.38	2269.2	1080.4	21.71	13.44	890
90.0	32.93520	50.61	2377.5	1146.9	21.61	13.38	896
95.0	31.85611	51.78	2485.3	1213.0	21.53	13.32	902
100.0	30.84778	52.88	2592.8	1278.9	21.45	13.27	909

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

400 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	29.01641	54.92	2806.7	1409.8	21.33	13.19	923
120.0	27.39512	56.77	3019.5	1540.0	21.24	13.12	937
130.0	25.94848	58.47	3231.5	1669.5	21.17	13.07	952
140.0	24.64885	60.04	3443.0	1798.6	21.12	13.02	967
150.0	23.47432	61.49	3654.0	1927.3	21.08	12.98	982
160.0	22.40729	62.85	3864.6	2055.8	21.05	12.95	997
170.0	21.43343	64.13	4074.9	2183.9	21.02	12.93	1012
180.0	20.54090	65.33	4285.0	2311.8	21.00	12.90	1027
190.0	19.71985	66.46	4494.9	2439.6	20.98	12.88	1042
200.0	18.96199	67.54	4704.7	2567.2	20.97	12.87	1056
210.0	18.26025	68.56	4914.3	2694.6	20.95	12.85	1071
220.0	17.60863	69.54	5123.7	2822.0	20.94	12.84	1085
230.0	17.00194	70.47	5333.1	2949.2	20.93	12.83	1100
240.0	16.43568	71.36	5542.3	3076.3	20.92	12.82	1114
250.0	15.90595	72.21	5751.5	3203.3	20.91	12.81	1128
260.0	15.40932	73.03	5960.5	3330.2	20.90	12.80	1142
270.0	14.94280	73.82	6169.5	3457.1	20.89	12.79	1156
280.0	14.50372	74.58	6378.3	3583.8	20.88	12.78	1169
290.0	14.08974	75.31	6587.1	3710.5	20.88	12.78	1183
300.0	13.69876	76.02	6795.9	3837.1	20.87	12.77	1196
310.0	13.32893	76.70	7004.5	3963.7	20.86	12.76	1210
320.0	12.97856	77.37	7213.1	4090.2	20.86	12.76	1223
330.0	12.64617	78.01	7421.7	4216.7	20.85	12.75	1236
340.0	12.33041	78.63	7630.1	4343.1	20.85	12.75	1249
350.0	12.03005	79.23	7838.6	4469.4	20.84	12.74	1262
360.0	11.74400	79.82	8046.9	4595.7	20.83	12.74	1275
370.0	11.47125	80.39	8255.3	4722.0	20.83	12.74	1287
380.0	11.21091	80.95	8463.5	4848.2	20.83	12.73	1300
390.0	10.96214	81.49	8671.8	4974.4	20.82	12.73	1312
400.0	10.72418	82.01	8879.9	5100.5	20.82	12.72	1325
420.0	10.27801	83.03	9296.2	5352.7	20.81	12.72	1349
440.0	9.86752	84.00	9712.3	5604.8	20.80	12.71	1373
460.0	9.48859	84.92	10128.3	5856.7	20.80	12.71	1397
480.0	9.13772	85.81	10544.1	6108.6	20.79	12.70	1420
500.0	8.81189	86.66	10959.9	6360.3	20.79	12.70	1443
550.0	8.09070	88.64	11998.9	6989.3	20.78	12.69	1499
600.0	7.47864	90.44	13037.4	7617.8	20.77	12.68	1553
650.0	6.95267	92.11	14075.6	8246.0	20.76	12.67	1605
700.0	6.49578	93.64	15113.5	8873.9	20.76	12.66	1656
750.0	6.09520	95.08	16151.2	9501.6	20.75	12.66	1705
800.0	5.74110	96.42	17188.8	10129.0	20.75	12.65	1753
850.0	5.42585	97.67	18226.2	10756.2	20.75	12.65	1800
900.0	5.14337	98.86	19263.6	11383.3	20.75	12.64	1845
950.0	4.88880	99.98	20300.9	12010.3	20.75	12.64	1890
1000.0	4.65821	101.05	21338.1	12637.1	20.74	12.63	1933
1100.0	4.25656	103.02	23412.5	13890.5	20.74	12.63	2018
1200.0	3.91856	104.83	25486.9	15143.5	20.74	12.62	2099
1300.0	3.63020	106.49	27561.2	16396.3	20.74	12.62	2177
1400.0	3.38130	108.02	29635.6	17648.8	20.74	12.61	2253
1500.0	3.16428	109.46	31710.1	18901.2	20.75	12.61	2326

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PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

600 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
11.0	69.87126	10.86	1076.4	206.3	14.12	10.02	1056
12.0	69.20105	11.98	1089.3	210.7	11.96	8.89	1070
13.0	68.64654	12.90	1100.7	215.1	11.03	8.40	1082
14.0	68.15462	13.70	1111.6	219.5	10.75	8.29	1091
15.0	67.69832	14.44	1122.3	224.3	10.82	8.40	1098
16.0	67.26269	15.15	1133.3	229.4	11.12	8.65	1104
17.0	66.83900	15.84	1144.6	235.0	11.55	8.99	1108
18.0	66.42201	16.51	1156.4	241.1	12.06	9.36	1112
19.0	66.00853	17.18	1168.7	247.7	12.61	9.76	1114
20.0	65.59665	17.84	1181.6	254.8	13.17	10.15	1115
22.0	64.77369	19.15	1209.1	270.5	14.31	10.93	1116
24.0	63.94923	20.44	1238.8	288.1	15.38	11.63	1115
26.0	63.12313	21.71	1270.6	307.4	16.36	12.24	1112
28.0	62.29673	22.95	1304.2	328.3	17.23	12.76	1107
30.0	61.47190	24.17	1339.5	350.4	18.00	13.20	1102
32.0	60.65055	25.35	1376.1	373.7	18.66	13.56	1096
34.0	59.83448	26.50	1414.0	398.0	19.23	13.86	1090
36.0	59.02529	27.62	1453.0	423.0	19.72	14.09	1083
38.0	58.22435	28.69	1492.8	448.7	20.13	14.28	1076
40.0	57.43284	29.73	1533.5	474.9	20.47	14.42	1070
45.0	55.50125	32.19	1637.5	542.1	21.11	14.63	1055
50.0	53.64517	34.43	1744.2	610.8	21.50	14.70	1041
55.0	51.87079	36.49	1852.3	680.2	21.72	14.68	1030
60.0	50.18092	38.39	1961.2	749.7	21.84	14.61	1022
65.0	48.57595	40.14	2070.5	818.9	21.88	14.50	1016
70.0	47.05453	41.76	2179.9	887.9	21.87	14.39	1012
75.0	45.61405	43.27	2289.2	956.3	21.84	14.28	1010
80.0	44.25111	44.67	2398.2	1024.3	21.78	14.16	1010
85.0	42.96176	45.99	2507.0	1091.9	21.72	14.05	1011
90.0	41.74181	47.23	2615.5	1159.0	21.66	13.95	1013
95.0	40.58696	48.40	2723.6	1225.7	21.60	13.86	1017
100.0	39.49298	49.51	2831.4	1292.0	21.53	13.77	1021

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

600 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	37.47147	51.56	3046.2	1423.7	21.42	13.63	1031
120.0	35.64709	53.42	3259.9	1554.4	21.33	13.50	1042
130.0	33.99356	55.12	3472.8	1684.3	21.25	13.40	1054
140.0	32.48840	56.69	3684.9	1813.6	21.19	13.32	1068
150.0	31.11260	58.15	3896.5	1942.5	21.14	13.25	1081
160.0	29.85014	59.51	4107.7	2071.0	21.09	13.20	1095
170.0	28.68746	60.79	4318.5	2199.2	21.06	13.15	1108
180.0	27.61307	62.00	4528.9	2327.2	21.03	13.11	1122
190.0	26.61717	63.13	4739.1	2455.0	21.01	13.08	1136
200.0	25.69137	64.21	4949.1	2582.7	20.99	13.05	1149
210.0	24.82844	65.23	5159.0	2710.3	20.97	13.02	1163
220.0	24.02213	66.21	5368.6	2837.8	20.96	13.00	1176
230.0	23.26699	67.14	5578.2	2965.2	20.95	12.98	1189
240.0	22.55826	68.03	5787.6	3092.5	20.94	12.96	1202
250.0	21.89175	68.89	5996.9	3219.7	20.93	12.95	1215
260.0	21.26378	69.71	6206.1	3346.9	20.92	12.93	1228
270.0	20.67108	70.49	6415.2	3474.1	20.91	12.92	1241
280.0	20.11073	71.26	6624.2	3601.2	20.90	12.91	1254
290.0	19.58015	71.99	6833.2	3728.2	20.89	12.90	1266
300.0	19.07702	72.70	7042.1	3855.2	20.88	12.89	1278
310.0	18.59923	73.38	7250.9	3982.1	20.88	12.88	1291
320.0	18.14493	74.04	7459.6	4109.0	20.87	12.87	1303
330.0	17.71240	74.69	7668.3	4235.9	20.87	12.87	1315
340.0	17.30012	75.31	7876.9	4362.7	20.86	12.86	1327
350.0	16.90669	75.91	8085.5	4489.5	20.85	12.85	1339
360.0	16.53084	76.50	8294.0	4616.2	20.85	12.85	1350
370.0	16.17141	77.07	8502.5	4742.9	20.84	12.84	1362
380.0	15.82734	77.63	8710.9	4869.6	20.84	12.84	1374
390.0	15.49767	78.17	8919.2	4996.3	20.83	12.83	1385
400.0	15.18151	78.70	9127.5	5122.9	20.83	12.83	1397
420.0	14.58651	79.71	9544.0	5376.0	20.82	12.82	1419
440.0	14.03654	80.68	9960.3	5629.0	20.81	12.81	1442
460.0	13.52666	81.61	10376.5	5881.9	20.81	12.80	1463
480.0	13.05262	82.49	10792.5	6134.7	20.80	12.79	1485
500.0	12.61077	83.34	11208.4	6387.4	20.79	12.79	1506
550.0	11.62703	85.32	12247.7	7018.8	20.78	12.78	1559
600.0	10.78586	87.13	13286.4	7649.7	20.77	12.76	1609
650.0	10.05829	88.79	14324.5	8280.1	20.76	12.75	1659
700.0	9.42269	90.33	15362.3	8910.2	20.75	12.74	1707
750.0	8.86264	91.76	16399.8	9539.9	20.75	12.74	1754
800.0	8.36539	93.10	17437.0	10169.3	20.74	12.73	1799
850.0	7.92093	94.36	18474.0	10798.5	20.74	12.72	1844
900.0	7.52126	95.54	19510.8	11427.5	20.74	12.72	1887
950.0	7.15992	96.66	20547.6	12056.3	20.73	12.71	1930
1000.0	6.83166	97.73	21584.2	12684.9	20.73	12.71	1972
1100.0	6.25768	99.70	23657.2	13941.7	20.73	12.70	2053
1200.0	5.77250	101.51	25730.1	15198.0	20.73	12.69	2132
1300.0	5.35698	103.16	27802.9	16453.9	20.73	12.68	2207
1400.0	4.99712	104.70	29875.7	17709.4	20.73	12.68	2281
1500.0	4.68245	106.13	31948.5	18964.6	20.73	12.67	2352

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

800 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
13.0	74.21800	10.24	1350.0	257.8	17.52	10.65	1212
14.0	73.42573	11.41	1365.8	261.8	14.57	9.53	1223
15.0	72.78113	12.36	1379.6	265.8	13.20	9.04	1231
16.0	72.22167	13.20	1392.5	270.1	12.62	8.91	1237
17.0	71.71537	13.95	1405.0	274.7	12.47	9.00	1241
18.0	71.24405	14.67	1417.5	279.7	12.59	9.22	1244
19.0	70.79668	15.36	1430.2	285.2	12.87	9.52	1246
20.0	70.36625	16.03	1443.3	291.3	13.24	9.87	1247
22.0	69.53933	17.33	1470.6	304.9	14.13	10.63	1248
24.0	68.74172	18.60	1499.8	320.6	15.06	11.37	1247
26.0	67.96331	19.84	1530.9	338.1	15.97	12.05	1245
28.0	67.19926	21.05	1563.7	357.4	16.80	12.66	1241
30.0	66.44728	22.24	1598.0	378.1	17.55	13.19	1236
32.0	65.70634	23.39	1633.8	400.1	18.20	13.64	1231
34.0	64.97603	24.51	1670.8	423.2	18.77	14.02	1225
36.0	64.25623	25.60	1708.8	447.3	19.26	14.34	1218
38.0	63.54695	26.65	1747.8	472.1	19.68	14.60	1211
40.0	62.84822	27.67	1787.5	497.7	20.03	14.81	1204
45.0	61.14766	30.07	1889.4	563.7	20.68	15.15	1187
50.0	59.51281	32.28	1993.9	631.8	21.09	15.32	1171
55.0	57.94221	34.30	2100.0	701.0	21.34	15.36	1156
60.0	56.43374	36.16	2207.1	770.7	21.47	15.33	1143
65.0	54.98498	37.88	2314.6	840.4	21.53	15.24	1132
70.0	53.59349	39.48	2422.4	909.8	21.55	15.13	1123
75.0	52.25691	40.97	2530.1	978.9	21.55	15.01	1116
80.0	50.97304	42.36	2637.8	1047.5	21.52	14.87	1111
85.0	49.73984	43.66	2745.3	1115.6	21.49	14.74	1107
90.0	48.55537	44.89	2852.7	1183.2	21.46	14.61	1105
95.0	47.41776	46.05	2959.9	1250.4	21.42	14.49	1105
100.0	46.32521	47.14	3067.0	1317.1	21.39	14.37	1105

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

800 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	44.26828	49.18	3280.5	1449.4	21.33	14.16	1110
120.0	42.37068	51.03	3493.5	1580.3	21.27	13.98	1118
130.0	40.61890	52.73	3706.0	1710.3	21.22	13.82	1127
140.0	38.99988	54.31	3918.0	1839.4	21.18	13.69	1139
150.0	37.50133	55.77	4129.6	1968.0	21.15	13.59	1151
160.0	36.11181	57.13	4340.9	2096.2	21.12	13.49	1164
170.0	34.82087	58.41	4552.0	2224.0	21.09	13.42	1178
180.0	33.61906	59.61	4762.8	2351.6	21.07	13.35	1191
190.0	32.49791	60.75	4973.4	2479.0	21.05	13.30	1205
200.0	31.44983	61.83	5183.9	2606.4	21.04	13.25	1219
210.0	30.46807	62.86	5394.1	2733.6	21.02	13.21	1232
220.0	29.54663	63.84	5604.3	2860.7	21.01	13.17	1246
230.0	28.68017	64.77	5814.2	2987.8	20.99	13.14	1259
240.0	27.86393	65.66	6024.1	3114.9	20.98	13.12	1272
250.0	27.09365	66.52	6233.9	3241.9	20.97	13.09	1285
260.0	26.36557	67.34	6443.5	3369.0	20.96	13.07	1298
270.0	25.67628	68.13	6653.1	3496.0	20.95	13.05	1311
280.0	25.02274	68.89	6862.5	3623.0	20.94	13.04	1323
290.0	24.40221	69.63	7071.9	3750.0	20.93	13.02	1335
300.0	23.81224	70.34	7281.2	3877.0	20.92	13.01	1348
310.0	23.25060	71.02	7490.4	4003.9	20.92	12.99	1360
320.0	22.71526	71.69	7699.5	4130.9	20.91	12.98	1371
330.0	22.20442	72.33	7908.6	4257.8	20.90	12.97	1383
340.0	21.71639	72.95	8117.5	4384.8	20.89	12.96	1395
350.0	21.24967	73.56	8326.4	4511.7	20.89	12.95	1406
360.0	20.80288	74.15	8535.3	4638.6	20.88	12.95	1418
370.0	20.37475	74.72	8744.1	4765.5	20.87	12.94	1429
380.0	19.96412	75.28	8952.8	4892.4	20.87	12.93	1440
390.0	19.56993	75.82	9161.4	5019.3	20.86	12.93	1451
400.0	19.19120	76.35	9370.0	5146.1	20.86	12.92	1462
420.0	18.47657	77.36	9787.1	5399.8	20.85	12.91	1484
440.0	17.81380	78.33	10203.9	5653.4	20.84	12.90	1505
460.0	17.19740	79.26	10620.5	5906.9	20.83	12.89	1526
480.0	16.62260	80.15	11037.0	6160.3	20.82	12.88	1547
500.0	16.08530	81.00	11453.3	6413.7	20.81	12.87	1567
550.0	14.88361	82.98	12493.3	7046.9	20.79	12.86	1617
600.0	13.84992	84.79	13532.6	7679.7	20.78	12.84	1665
650.0	12.95106	86.45	14571.1	8312.0	20.77	12.83	1712
700.0	12.16211	87.99	15609.2	8944.0	20.76	12.82	1758
750.0	11.46396	89.42	16646.7	9575.7	20.75	12.81	1802
800.0	10.84171	90.76	17683.9	10207.0	20.74	12.80	1846
850.0	10.28358	92.02	18720.8	10838.1	20.74	12.80	1888
900.0	9.78010	93.20	19757.4	11468.9	20.73	12.79	1930
950.0	9.32360	94.32	20793.8	12099.5	20.73	12.78	1971
1000.0	8.90777	95.38	21830.1	12729.9	20.72	12.78	2011
1100.0	8.17813	97.36	23902.2	13990.1	20.72	12.77	2090
1200.0	7.55877	99.16	25974.0	15249.7	20.72	12.76	2165
1300.0	7.02641	100.82	28045.5	16508.7	20.72	12.75	2239
1400.0	6.56392	102.36	30117.0	17767.3	20.71	12.74	2310
1500.0	6.15839	103.78	32188.4	19025.5	20.71	12.74	2379

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

1000 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
14.0	78.86086	7.97	1584.1	299.2	29.25	13.53	1348
15.0	77.68262	9.66	1608.6	304.3	21.03	11.42	1356
16.0	76.81772	10.89	1627.7	308.6	17.47	10.39	1361
17.0	76.11493	11.89	1644.2	312.9	15.71	9.94	1363
18.0	75.50941	12.76	1659.4	317.5	14.85	9.81	1364
19.0	74.96744	13.56	1674.0	322.4	14.48	9.89	1364
20.0	74.46943	14.30	1688.5	327.8	14.42	10.08	1363
22.0	73.56065	15.68	1717.6	340.1	14.76	10.68	1362
24.0	72.72675	16.99	1747.7	354.4	15.41	11.37	1359
26.0	71.94073	18.26	1779.2	370.7	16.14	12.07	1356
28.0	71.18839	19.48	1812.2	388.9	16.87	12.71	1352
30.0	70.46177	20.67	1846.7	408.6	17.55	13.30	1347
32.0	69.75612	21.82	1882.4	429.8	18.17	13.81	1341
34.0	69.06850	22.94	1919.3	452.2	18.71	14.25	1335
36.0	68.39697	24.02	1957.2	475.7	19.19	14.62	1328
38.0	67.74017	25.07	1996.0	500.2	19.59	14.94	1321
40.0	67.09710	26.08	2035.5	525.4	19.94	15.20	1314
45.0	65.54457	28.47	2136.9	591.0	20.58	15.66	1295
50.0	64.06361	30.66	2240.9	659.2	20.97	15.91	1276
55.0	62.64679	32.67	2346.3	728.9	21.19	16.02	1258
60.0	61.28776	34.52	2452.6	799.3	21.30	16.03	1242
65.0	59.98094	36.23	2559.2	869.9	21.34	15.98	1227
70.0	58.72152	37.81	2665.9	940.3	21.33	15.88	1214
75.0	57.50539	39.28	2772.5	1010.4	21.31	15.75	1202
80.0	56.32910	40.65	2878.9	1080.1	21.27	15.62	1193
85.0	55.18984	41.94	2985.2	1149.2	21.22	15.47	1185
90.0	54.08530	43.15	3091.2	1217.7	21.18	15.32	1179
95.0	53.01367	44.30	3197.0	1285.6	21.14	15.18	1174
100.0	51.97349	45.38	3302.6	1353.0	21.11	15.03	1171

PROVISIONAL THERMODYNAMIC PROPERTIES OF HELIUM-4

1000 ATMOSPHERE ISOBAR

TEMP K	DENSITY MOL/LITER	ENTROPY J/MOL-K	ENTHALPY J/MOL	INTERNAL ENERGY J/MOL	CP J/MOL-K	CV J/MOL-K	SPEED OF SOUND M/S
110.0	49.98304	47.39	3513.4	1486.2	21.06	14.77	1168
120.0	48.10701	49.22	3723.9	1617.6	21.04	14.53	1170
130.0	46.34018	50.90	3934.3	1747.7	21.03	14.32	1176
140.0	44.67784	52.46	4144.6	1876.6	21.03	14.14	1185
150.0	43.11521	53.91	4354.9	2004.7	21.03	13.99	1196
160.0	41.64711	55.27	4565.2	2132.2	21.04	13.86	1208
170.0	40.26807	56.55	4775.6	2259.3	21.04	13.74	1221
180.0	38.97243	57.75	4986.0	2386.0	21.05	13.65	1235
190.0	37.75451	58.89	5196.5	2512.6	21.05	13.56	1249
200.0	36.60873	59.97	5407.0	2639.1	21.05	13.49	1264
210.0	35.52976	60.99	5617.4	2765.5	21.04	13.43	1278
220.0	34.51255	61.97	5827.8	2891.9	21.04	13.38	1292
230.0	33.55239	62.91	6038.2	3018.2	21.04	13.33	1307
240.0	32.64491	63.80	6248.6	3144.6	21.03	13.29	1321
250.0	31.78610	64.66	6458.9	3271.1	21.03	13.26	1335
260.0	30.97229	65.49	6669.1	3397.5	21.02	13.23	1348
270.0	30.20011	66.28	6879.2	3524.0	21.01	13.20	1362
280.0	29.46649	67.04	7089.3	3650.6	21.00	13.17	1375
290.0	28.76865	67.78	7299.3	3777.1	21.00	13.15	1388
300.0	28.10403	68.49	7509.2	3903.8	20.99	13.13	1401
310.0	27.47031	69.18	7719.0	4030.4	20.98	13.11	1413
320.0	26.86536	69.85	7928.8	4157.1	20.97	13.10	1425
330.0	26.28727	70.49	8138.5	4283.8	20.96	13.08	1438
340.0	25.73424	71.12	8348.1	4410.6	20.96	13.07	1450
350.0	25.20468	71.72	8557.6	4537.4	20.95	13.06	1461
360.0	24.69708	72.31	8767.0	4664.2	20.94	13.05	1473
370.0	24.21009	72.89	8976.4	4791.0	20.93	13.04	1484
380.0	23.74245	73.45	9185.6	4917.8	20.92	13.03	1496
390.0	23.29302	73.99	9394.8	5044.7	20.92	13.02	1507
400.0	22.86072	74.52	9604.0	5171.6	20.91	13.01	1518
420.0	22.04369	75.54	10022.0	5425.3	20.90	13.00	1539
440.0	21.28436	76.51	10439.8	5679.1	20.88	12.98	1561
460.0	20.57670	77.44	10857.3	5932.9	20.87	12.97	1581
480.0	19.91552	78.33	11274.6	6186.7	20.86	12.96	1602
500.0	19.29629	79.18	11691.7	6440.5	20.85	12.95	1622
550.0	17.90705	81.16	12733.4	7074.9	20.82	12.93	1670
600.0	16.70693	82.97	13774.0	7709.0	20.80	12.92	1717
650.0	15.65926	84.64	14813.7	8342.9	20.79	12.90	1762
700.0	14.73634	86.18	15852.6	8976.5	20.77	12.89	1806
750.0	13.91691	87.61	16890.8	9609.9	20.76	12.88	1849
800.0	13.18429	88.95	17928.4	10242.9	20.75	12.87	1891
850.0	12.52526	90.21	18965.6	10875.7	20.74	12.86	1932
900.0	11.92918	91.39	20002.4	11508.3	20.73	12.86	1973
950.0	11.38737	92.51	21038.9	12140.6	20.73	12.85	2012
1000.0	10.89269	93.58	22075.0	12772.7	20.72	12.84	2051
1100.0	10.02200	95.55	24146.8	14036.2	20.71	12.83	2126
1200.0	9.28011	97.35	26217.9	15299.1	20.71	12.82	2200
1300.0	8.64034	99.01	28288.6	16561.3	20.71	12.81	2270
1400.0	8.08290	100.55	30359.0	17822.9	20.70	12.80	2339
1500.0	7.59284	101.97	32429.2	19084.1	20.70	12.80	2407

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